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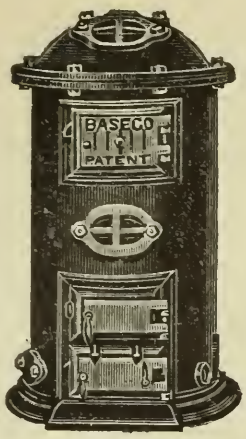

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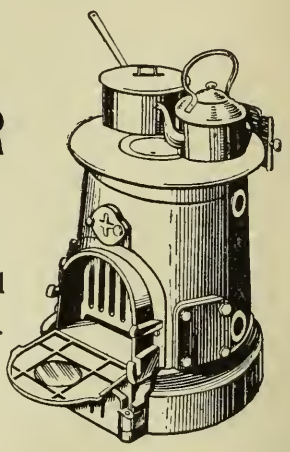

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CONGRESS AT FOLKESTONE.

CONFERENCE IV.—VETERINARY INSPECTORS.

Presidential Address by Major-General Sir Layton Blenkinsop, K.C.B., D.S.O., Director-General, Army Veterinary Service.

IN opening the section of this Congress, the work of the Veterinary Profession within the domain of public health comes naturally uppermost in the mind. The influence of animals on the health and well-being of the nation cannot be treated lightly, and, wherever this influence is felt, the Veterinary Inspector should have no small voice. The Veterinary profession, like all other scientific professions, has advanced with great strides during recent years, and I feel confident that in the near future the advance of veterinary preventive medicine will be even more marked, especially if the Veterinary Profession is trusted to carry out the work which falls within its legitimate duties, without the unnecessary interference which always results from dual control. There is no reason why the Veterinary and Medical professions should not work side by side for their mutual advantage, and with closer co-operation the two would help each other, and the public would greatly benefit.

The Veterinary Profession during the Great War has shown that it is competent to bring animal diseases under control, and to raise animal efficiency to a very high standard. A profession which has proved itself capable of this in war can undoubtedly do similar work in peace, if properly organised and administered.

The work which Veterinary Inspectors are eminently capable of performing is not by any means confined to animal diseases. Their professional training and their experience of the domesticated animals eminently fit them for a far wider sphere of usefulness. They might, with advantage, be entrusted with the duties relating to the maintenance of health in animals destined to provide food for the nation, a claim the Veterinary Profession has

not sufficiently pressed. It is the most important of all the work which the Veterinary Inspectors' duties should cover, and the true basis of all Veterinary preventive medicine.

The maintenance of health in animals involves a very large number of questions and demands a practical knowledge of many and widely different subjects which are included in the term "Zootechnics." The chief subjects are the art of breeding and selecting animals to live in a particular environment, the nutrition of animals on economic lines, the sanitation of animals both when housed and at graze, and the handling of all animals in domestication. These questions affecting animals in health must necessarily fall to the men who deal with those departures from health which we understand under the term "Disease."

The animal diseases which we should consider in a Congress of this Institute fall under two broad headings :—

(*a*) Diseases communicable to man, or producing conditions which affect public health.

(*b*) Diseases affecting the value of animals and animal products destined for human food.

In the former group Tuberculosis is the most important at the present time, and you are being given a paper on Tuberculin tests in cattle, which, at present, is the basis of the scientific diagnosis of this disease in animals. With the knowledge at our disposal there is no doubt that Tuberculosis in animals could be brought under control, and to one who has spent his life in combating disease in all classes of animals, it appears little short of scandalous that some definite attempt has not been taken for the control, if not eradication, of this scourge amongst our farm stocks. The wastage of child-life due to bovine tuberculosis is well known, and you are able to appreciate the toll this disease takes of our milk and meat-producing animals. The work now being done for the eradication of this disease amongst animals in America and on the Continent of Europe should undoubtedly stimulate the authorities in this country to take steps to clear our herds of this scourge. To attempt this with any possibility of success more drastic and efficient legislation is required than the existing Orders, and the first steps should be to make the disease notifiable in its early stages under the Animals (Notification of Disease) Order. The present *non possumus* attitude taken up by some authorities in this country, is one which should not be accepted by the younger and more progressive members of this section. There appears to be hesitation in bringing forward efficient legislation, owing to the fear of dangerously reducing the total quantity of milk produced in this country ; but surely we are not justified in countenancing in this way the distribution of disease-bearing milk, even if the eradication of the disease would neces-

sarily have the effect of curtailing the milk supply, which I greatly doubt. With our present scientific knowledge we have other methods at our disposal than the poleaxe.

The schemes put forward for eradicating tuberculosis from specially selected herds and well-chosen centres, where the percentage of affected animals may be small, and gradually extending the sphere of operations, may appeal to some, but when one appreciates the wastage of child life which is taking place owing to contaminated milk, one is inclined to the opinion that too much consideration is being given to vested interests, and not enough to the welfare of our nation's greatest asset, our children.

Now turning to those animal diseases which, though not transmissible to man, nevertheless materially affect the nation's food supply, either by interfering with the natural increase of our domesticated animals, or by rendering food products derived from them less valuable. These diseases are often of the greatest importance from an economic point of view, and require a very carefully trained and efficient Veterinary Service for their amelioration, if not eradication. Further, the sanitary care of animals should be looked upon as one of the most important duties of Veterinary Inspectors. Take, for instance, the milk supply from ill kept, badly fed cattle, occupying insanitary dairies. Is it right that milk derived from cows under such conditions should be placed on the market mainly as a food for our children ? As the public become better educated in questions connected with the nation's food supply, they will insist on these matters receiving proper attention. The Veterinary Inspectors will be called upon to perform the duties indicated as theirs by virtue of their professional training.

It is for you to see to it that when the call comes, you one and all, are fully capable of proving your value. From experience of your work during the Great War, I am perfectly confident that when the call is made, you will come forward and prove the aid the Veterinary Profession is capable of giving in solving many of the great problems which are facing the Ministry of Public Health.

The Tuberculin Test in Cattle.

By Brennan De Vine, M.C., F.R.C.V.S., D.V.S.M., Chief Veterinary Inspector, Birmingham (Member).

(Abstract.)

IT is a well-known fact that meat and milk may act as carriers of diseases, including tuberculosis, to human beings, and also that there is a high percentage of animals in the milking herds in this country affected with tuberculosis. Hence there is great necessity for the eradication of tuberculosis from our dairy herds. When the tuberculin test becomes better known, and what a great factor it is in the eradication of tuberculosis in cattle, it will no doubt become more popular. Of 20 new herds tested by the writer, the reactions indicated that 38·2% of the animals were affected with tuberculosis.

It is not possible to diagnose tuberculosis in cattle with absolute certainty without the aid of tuberculin. The tuberculin test may be applied in several ways :—1. Ophthalmic Method. 2. Intradermal Method. 3. Subcutaneous Method.

Calmette's tuberculin is used for the ophthalmic method. It is dropped on to the eye or applied with a camel-hair brush to the cornea. In reacting animals this is followed 5 or 10 hours later by a muco-purulent discharge, which persists from 24 to 48 hours. This method is useful when used in conjunction with the subcutaneous test.

The intradermal test is not commonly used. Reacting animals exhibit a swelling at the site of operation from 24 to 48 hours following the injection.

The subcutaneous method is most commonly used. Before animals are tested they should be handled carefully, and no animals suffering from or recently recovered from any acute disease should be submitted to the test. Similarly, animals that are lame or those which are close to calving or affected with any other condition which is likely to temporarily upset the temperature, and animals under six months old, should not be submitted to this test.

In the great majority of cases animals which give doubtful reactions usually prove affected with tuberculosis. The temperature following a subcutaneous injection is ordinarily taken from the eighth to the thirteenth hour, but where animals have been recently subjected to the test, the effect of the first injection would be to disguise the reaction, and in these cases the temperature should be taken much earlier following the injection, and an increased dose of tuberculin should be given.

In competent hands and properly carried out I consider the tuberculin test is absolutely reliable as a diagnostic agent. In a herd of 36 animals which I had an opportunity of making a post-mortem examination on later, I found the test correct in every instance. Of the 36 animals tested, 22 were definite reactors and tuberculosis was found in some form or other in each case on post-mortem. The height of temperature attained after the tuberculin test is no indication as to the extent of the disease. An animal whose highest temperature during the test was 104° F. was, on post-mortem examination, found to be very extensively affected with tuberculosis, whilst another animal in the same herd, whose highest temperature during the test rose to 106° F., on post-mortem examination was found to be only slightly affected. The degree of thermal reaction in the test only indicates if tuberculosis is present, but is no indication of the extent of the disease.

If herds are to be kept tubercle-free, the whole herd should be subjected to the test at least every six months.

With a view to preventing fraud, it is advisable that the tuberculin should be standardised and controlled. Tubercle-free herds can be economically maintained if the animals are bred on the premises, and no outside animals introduced, but where herds are maintained by the buying-in of matured new animals when extra milkers are required there is not likely to be much success. If due precautions are taken in applying the test, fraud in the majority of cases can be detected, and as milking cows are now such costly animals, it pays well to spend sufficient time in the testing to make certain if they are affected or not.

The Slaughtering of Animals for Human Food.

By E. J. Burndred, M.C., M.R.C.V.S., D.V.H., Veterinary Inspector, Blackburn.

(Summary.)

THE methods of slaughter of food animals have for their object the draining of the carcase as completely as possible of its blood content.

They may be divided into three main groups.

1. Simple bleeding : Thoracic or cervical.
2. Bleeding with mutilation of the medulla (pithing).
3. Bleeding after previous stunning.

For humanitarian reasons all animals should be stunned previous to bleeding.

Stunning may be caused by a blow on the head or by penetration of the skull and injury to the brain.

Various instruments advocated include hammer, club, poleaxe, striking bolts, shooting bolts, and bullet firing appliances.

In all methods involving destruction or injury to the medulla there is danger of defective bleeding.

In the use of bullet-firing appliances there is a certain amount of danger.

Apart from the actual method of slaughter, the conditions associated with slaughterhouses generally may cause unnecessary suffering.

Animals should be stunned in special pens distinct from the bleeding and dressing room.

Slaughtermen should be licensed by the Local Authority.

The Uniformity of Meat Inspection and Some Suggestions as to how it might be Secured.

(Abstract.)

By Thomas Parker, F.R.C.V.S., Veterinary Inspector, Newcastle-upon-Tyne.

BEFORE meat inspection can be carried out so as to reasonably guarantee that :—

(*a*) the carcasses, etc., of all animals slaughtered for food purposes are subjected to inspection ;

(*b*) the methods of inspection and standards of judgment are such that the consumers will know with some degree of certainty that the meat they purchase is free from disease ; and that—

(*c*) the owners of the carcasses could feel satisfied that in every district the same methods and standards are in operation so that, so far as they were concerned, the risks of condemnations and the premiums necessary for insurance would in every part of the country be on a comparable basis —

it will be necessary to secure by legislative means an efficient system of control made applicable to every part of the country. This may be briefly considered under the following headings :—

(1) The Supervision of Animals before and after Slaughter.
(2) A System and Standard of Inspection.
(3) Administration.

(1) The Supervision of Animals Before and After Slaughter.

To make it possible for inspection to be applied equally everywhere it will be essential to have some control of every animal immediately before, at the time, and immediately after slaughter for human food, and of the premises in which the slaughtering is carried out.

With few exceptions it should not be permissible to slaughter food animals on premises other than those licensed for the purpose. These exceptions are :—

(*a*) *Occasional Slaughtering.*—Many farmers and others make a practice of slaughtering annually one or more animals which they have fed for their own or their servants' or neighbours' use. In all such cases it should be compulsory for the owner, at least 24 hours before proceeding to slaughter, to notify the Local Authority concerned so that an opportunity would be afforded for making an inspection of the carcass and organs.

(*b*) From time to time animals are slaughtered under the powers conferred by the Diseases of Animals Acts, 1894-1914, and Orders made thereunder ; but as such slaughtering is generally carried out by the instructions or under the supervision of an Officer of the Ministry of Agriculture further reference is unnecessary here.

(*c*) Sometimes the slaughter of an animal is immediately necessary or desirable owing to accidental injury or illness of the animal or for some other exceptional reason or purpose. In all such cases it should be compulsory for the owner or person in charge to give notice of such slaughter to the Local Authority without delay, and it should not be permissible to remove or dispose of either the carcass or offal within 24 hours after forwarding the notice unless it has been officially inspected and the Inspector agrees to the removal ; and no matter whether the meat is intended for human consumption or otherwise, the owner or person in charge should, if required, be legally compelled to furnish full information to the Local Authority as to the person or persons to whom he disposes of the carcass, internal organs, hide, skin or any parts derived from any animal killed under such circumstances.

Public and Private Slaughterhouses.

In this country there are very few, if any, premises that could be considered good examples of modern abattoirs. In Scotland, fine abattoirs may be seen at Edinburgh and Glasgow, and in Ireland, at Belfast. Apart from the great advantages, so far as general sanitation is concerned, to be derived by the institution of public abattoirs, it is universally recognised that meat inspection proper can only be completely applied when slaughtering is confined to such places.

It has been estimated that there are in England and Wales something like 20,000 private slaughterhouses.

Most butchers and dealers are well aware of the risk, financially, to which the owner is exposed through loss by condemnation of meat when uninsured cattle of a certain class are slaughtered in well inspected districts. Indeed, were inspection carried out in every district in respect of every animal slaughtered, no butcher could afford to slaughter uninsured cattle unless he purchased them with a warranty.

Again, during the year 1919, within the City of Newcastle-upon-Tyne, some 43,307 cattle, calves and pigs were slaughtered for food purposes. The slaughtering was carried out within 106 private slaughterhouses and one public slaughtering hall. Of the total slaughtered, 396 whole carcasses

and parts or organs of 128 other carcasses were condemned as being diseased, unsound or otherwise unfit for human consumption. At this stage one may reasonably ask :—" What becomes of the large amount of meat, diseased or otherwise unfit for human consumption, derived from animals slaughtered in many other districts and of which one hears little or nothing ? "

Having provided for the proper supervision of the few animals slaughtered from time to time, on premises other than recognised slaughterhouses, regarding all other slaughtering and the desirability for the application of inspection to eventually become uniform in every way, Local Authorities throughout the country should continuously aim at the establishment of Public Abattoirs.

(2) A SYSTEM AND STANDARD OF INSPECTION.

With the exception of one or two places where modern abattoirs are in use there has not yet been put into practice within the District of any Local Authority any system of meat inspection which could be classed as methodical. Indeed, in most places there is a complete absence of any system whatever. This is probably due to two reasons, the want of an adequate staff and the scattered distribution of slaughterhouses.

A complaint sometimes raised by meat traders, and one that calls for attention, is one concerning the decisions arrived at by officials when dealing with diseased carcasses. It is alleged that carcasses which would on inspection be passed in one District are sometimes either wholly or partly condemned in others.

In order that the decisions given by officials in all parts of the country shall be on a comparable basis it will be necessary to have in operation regulations defining the exact system and standard of inspection to be carried out in respect of animals from the time they enter the slaughter house until the carcasses and organs are passed or rejected.

(3) ADMINISTRATION.

Assuming that we had succeeded in bringing about more centralised slaughtering and that the regulations as suggested were in operation, all that would be necessary to secure their due observance would be the maintenance of an adequate and efficient staff.

As the first step in meat inspection proper is to recognise either by ante or post-mortem inspection or both the presence of abnormal conditions and to determine their significance, it naturally follows that those responsible for the work should possess some qualifications indicating that they have received a thorough training in veterinary science, that is to say, if a standard of inspection code is to be correctly interpreted and carried out.

For the purpose of meat inspection it will be seen that it is essential to have two grades of officials, professional experts and lay assistants or meat

inspectors. The professional experts would be responsible for controlling, directing and supervising the work of the meat inspectors, examining the carcasses, etc., detained by them and deciding in cases of doubt and difficulty.

In the interests of efficiency this should also be clearly recognised by all Local Authorities and Government Departments.

To amend the law, so as to give Veterinary Inspectors and qualified Meat Inspectors as such the legal right to seize meat, is one of the many recommendations that may be anticipated being made public in a Departmental Committee's Report in the near future.

Preventive medicine may be brought under two headings—Direct and Indirect ; and it is under the latter that Veterinary Public Health appears to come.

The control of tuberculosis, anthrax, glanders, rabies and other diseases amongst the domestic animals is primarily in the interests of stock owners, but the result of such control, if successful, is the means of prevention of the risk of infection in man. The recognition of diseases in the same animals after slaughter for human consumption is also the means of the prevention of the risk of infection in man. Within the same category may be placed the recognition of unsound or unwholesome conditions of animal flesh, and diseases of fish, poultry, game, etc. Indeed, there are many other subjects which, although outside the realm of meat inspection, come within the scope of Public Health Veterinary Medicine.

As time goes on we may confidently expect the larger City and County Authorities setting up Veterinary Departments for the purposes of meat inspection and other branches of veterinary work. In this connection Glasgow. Edinburgh and Islington have given a lead.

In each county there should be appointed at least one whole time Veterinary Inspector for the purposes of the Diseases of Animals Acts and Public Health work including meat and milk inspection. Each county should be split up into a number of districts according to its area, in each of which there should be a whole time qualified lay meat inspector who would supervise and inspect the slaughter houses and cowsheds, and also act as an Inspector under the Diseases of Animals Acts, and also a Veterinary Practitioner, residing within the district, appointed as a Veterinary Inspector for the purposes of the Diseases of Animals Acts, inspecting dairy herds and for the purpose of meat inspection in connection with the work of the district meat inspector. The whole of these officials and their work would be under the direction and control of the County Veterinary Inspector who would be directly responsible to the Local Authority concerned.

On the lines indicated (providing whole-hearted co-operation be given by all concerned) uniformity of meat inspection will be attained with greater certainty than by any other method.

Disinfection and Disinfectants.

By W. J. Young, F.R.C.V.S., D.V.S.M. (Vict.), Veterinary Inspector, Ministry of Agriculture and Fisheries.

(Abstract).

THE general public is apt to expect that disinfection can be done instantaneously, and it is apparent that much popular misconception exists concerning the real nature, value and limitations of the various disinfectants in daily use. Cheapness is considered by some to be a recommendation, while others are under the impression that a strong smelling disinfectant must be powerful. Money spent on well directed and intellectually controlled disinfection is justifiable.

Each disease requires special consideration in order that it can be prevented or eradicated by disinfection. To know what to disinfect, is as important as how and when to do so.

Disinfection means the destruction of the agents causing infection or the conversion of a place, animal or thing from a potentially infective state into one which is free from infection.

Sterilisation is the destruction of all lower forms of animal and vegetable life that may be in or on an object.

A disinfectant is an agent that destroys pathogenic organisms and their spores. Substances which have the power to neutralise or destroy unpleasant odours arising from organic matters undergoing fermentation or putrefaction are deodorants.

Deodorants destroy smells, disinfectants destroy germs.

Antiseptics are substances which prevent decomposition and decay.

The chemical nature of bacteria and the manner in which physical agents such as drying, agitation, gravity, pressure, electricity, light and temperature, act on them are briefly discussed.

Disinfectants perform their duties in four ways :—

1. Destruction by oxidation.
2. Destruction by ionic poison with coagulation.
3. Destruction by coagulation and poisoning not ionic in character.
4. Destruction by amoeboid action, that is, through Brownian movement and absorption.

Disinfectants are divided into two groups :—

(*a*) Physical ; as wind, sunlight, heat and electricity.

(*b*) Chemical ; gases, liquids and solids.

Dry heat, saturated and superheated steam are criticised. The gases discussed are chlorine, sulphur dioxide, formaldehyde, and reliable methods for their generation are described.

An International Standard with clearly defined rules of procedure to adopt when testing disinfectants is desirable.

In the interests of public health, of honest traders and of those whose duty it is to prevent and eradicate diseases, it is essential that official control should be exercised over all proprietary disinfectants and that approved strengths for use should be stated on the labels, which should be securely attached to the containers. It is of little use to the Veterinary or other inspector who is appointed to enforce the provisions of the various Acts and Orders pertaining to diseases of animals to know what the carbolic co-efficient of a disinfectant is.

The knowledge desired is the time taken to kill specific organisms or viruses and the proper strength to use.

All processes of disinfection should be accompanied by a thorough cleansing of the infected premises and articles.

The following took part in the discussion in this Conference :—Prof. G. H. Wooldridge (London) ; Mr. Deputy W. P. Neal (City of London) ; Dr. H. Scurfield (Folkestone) ; Mr. Rowe Morris (Chester) ; Mr. Eaton Jones (Liverpool) ; Mr. T. Parker (Newcastle-on-Tyne), Prof. F. Hobday (London) ; Mr. W. Fortescue (City of London) ; Dr. W. G. Willoughby (Eastbourne) ; Mr. J. R. Hayhurst (London) ; Lt.-Col. G. Leighton (Edinburgh) ; Mr. Paddison (R.S.P.C.A.) ; Councillor R. Major (Brighton) ; Dr. C. J. Coleman (Lincoln) ; Mr. J. T. Cowderoy (Kidderminster) ; Mr. J. B. Buxton (London) ; Major-Gen. Sir L. Blenkinsop (London) ; Mr. G. P. Male (Reading).

CONGRESS AT FOLKESTONE.

CONFERENCE V.—SANITARY INSPECTORS.

Presidential Address by G. M. Pettit, Chief Sanitary Inspector, Kensington (Member).

DURING my long experience I have seen many and great changes for the welfare of the public as a whole, but, notwithstanding that improvement in the status and remuneration of sanitary inspectors has not kept its pace in the general development, and that other benefits which have been foreshadowed have not yet materialised, it is clear that the old time sanitary inspector is being fast supplanted by a new type, and that this is in complete accord with the order of progress now obtaining, for it will be generally accepted that, as in every other calling, such training as will enable a man to cope with the immediate progressive situation is as necessary a qualification for our important duties as is good character. The old social conditions which enabled our work to be more or less successfully performed on qualifications of good personal character and poor technical training are now past, and it behoves us, therefore, to be up and doing and to educate ourselves in the ever fresh and growing demands of the public, and in giving effect to such of these demands as find their expression in Parliamentary legislation, which latter is daily increasing both in bulk and complexity. By so doing we shall excel in the great and important work placed in our hands.

I am not inferring that sanitary inspectors are the only body of men and women engaged in the public health service, but we are part of the great organisation which is working to this end; we must, therefore, be as efficient as every other part of the machine, otherwise the whole will lag.

I have been associated with the Royal Sanitary Institute since 1889, and during this period have seen its teaching and examinations subjected to great changes. Needless to say, I have added to my knowledge of public health questions as a result of my association with the Institute, and, in this respect, I recognise that we London inspectors possess advantages over those of our colleagues who live far from London, and are thereby precluded from attending meetings. But I think the Council to be remiss in one very important point, in not appointing a sanitary inspector to the Board of Examiners, especially having regard to the fact that so far back as in 1887 the Council foresaw that, in order to qualify for this important branch of public health

work, an examination was fast becoming of necessity. In this connection, then, it may well be contended that the Council of the Institute have not led, and the fact of their having allowed a newer body of examiners, the London Sanitary Inspectors' Examination Board, to pioneer so vital a reform is one which gives rise to regret.

Having thus briefly touched upon the educational side of our work and what I consider to be among the qualities and grounding necessary to making for efficiency in a sanitary inspector's duties from the standpoint of present needs and future social development, I pass to other questions and first to those of direct material interest to sanitary inspectors, some of which were under discussion so far back as thirty years, when first I entered the service. These included Security of Tenure, Superannuation, substitution of the term "Sanitary Inspector" for that of "Inspector of Nuisances," and, lastly, a living salary. All these reforms have been promised on many occasions, and Ministers from time to time have acknowledged their necessity, justice and reasonableness, but only one of these questions, Security of Tenure, has been met in any practical way. By the order issued by the Ministry of Health whereby any Inspector of Nuisances appointed after 1st May, 1921, is considered as being upon a probationary basis for one year, and should he still be in the service at the expiration of such period, his tenure shall be considered as secure.

This is a step forward, but, even so, the proviso does not commend itself to me, for I consider that a man should be properly trained and fully qualified by examination before his candidature for appointment by any Local Authority can be considered, and then having been once appointed on this basis his tenure should be secure from the date of appointment for such time as he shall carry out his duties in a satisfactory manner. Should, however, he fail in this latter respect his appointment should be subject to termination after due enquiry and report.

I think, also, that some security should have been granted to the older men, and that those who have held their positions for three years should have been included in the Order, thus bringing it into line with the provisions of the Public Health (London) Act, 1891, governing qualification and appointment. This question could have been adjusted by the simple expedient of so wording the Ministry Order that, with the exception of the reference to the County of London, it read in terms identical with the London Order issued by the Local Government Board on 8th December, 1891, with respect to the appointment, tenure of office, salary and duties of every medical officer of health or sanitary inspector appointed in the County of London on or after 1st January, 1892, or who, having been appointed prior to that date, shall be re-appointed on or after that date. The Ministry

Order would then have embraced many men whose tenure is still not secure and who are justly entitled to fixity.

This Order, further, does not appear to me as applicable to assistant inspectors. These men perform the same nature of duties as do district inspectors in London, and are entitled to conditions equal to those enjoyed by inspectors of nuisances in the country, and some concession in this respect should be granted them.

I hope, also, that, before this address is delivered, the term "Inspector or Nuisances" will be fast becoming obsolete and that the Bill presented to the House of Commons by Sir Philip Magnus, M.P., will have made some material progress towards the Statute Book. This Bill not only proposes the abolition of the title "Inspector of Nuisances," but it would also empower Local Authorities to appoint two or more sanitary inspectors. In such circumstances it would be for each and all of us to bring to bear whatever pressure might be necessary for securing the practical application of these provisions in cases in which slackness or unwillingness on the part of Local Authorities to avail themselves thereof would seem to be apparent.

The question of salary is also of considerable importance to sanitary inspectors, and whilst rates of pay have shewn some improvement they are still inadequate. The Ministry of Health and the various Local Authorities are continually pressing for men fully qualified to perform the responsible duties of our calling, and now that the Ministry have approved of the various Boards set up for the purpose of granting qualifying certificates, it is equally up to the Ministry to state and fix the salary which the holders of such certificates shall receive. This salary should, amongst other considerations, be such as to place us in the public mind above the apprehension that we may be men of no integrity and open to bribes and corrupt gifts. I well remember how loosely was disseminated, both by innuendo and in some cases by direct statement, the impression that sanitary inspectors "made a lot" and that they could be "easily bribed not to find what they went to look for," but I am glad to say that such suggestions have since become extinct.

Of superannuation I can only say that whilst I welcome the fact that some Local Authorities, under Acts of Parliament confined to themselves alone, are now providing superannuation for their officials, it is still to be deplored that generally this claim has so far been conceded in principle only, and affirmations of recognition of its justice made from time to time by the several Presidents of the Local Government Board, represent the extent to which it has been met in practice.

As, therefore, the Ministry of Health, the Borough Councils, the general public and the very nature of our calling demand our whole time service,

these bodies should pay us on that basis whilst we are able to work and ensure that adequate provision is made for us when we are past working.

I trust that I may see superannuation for sanitary inspectors passed into general legislation during the remaining period of my time of office, now fast drawing to a close.

What is described as "The Housing Question" has been responsible for the passing of many Acts of Parliament, with the result that those of us whose duty consists largely in the administration of these laws have suffered some considerable increase in our responsibilities. I would cite only one instance arising from Section 28 of the Housing and Town Planning Act, 1919, wherein occurs the term "reasonably fit for human habitation." This term is, to my mind, not only the basis of many perplexities, but it is also unnecessary, for I consider that the Public Health Acts and Bye-laws made thereunder, if properly enforced, are ample for securing that a house is fit for human habitation. But the particular section in point implies otherwise, and I have yet to learn where the Public Health Act lacks the power which, under the Housing and Town Planning Act, 1919, is given to any Local Authority by notice served under such acts to cause a house to be rendered fit for habitation. In the borough in which I work not more than twenty-eight applications have been made for an inspection under the Rent Restriction Act, and of these only eight certificates were granted, these being in most cases for the better class of houses, a fact which speaks plainly for the efficiency of the Public Health Act and By-laws.

The houses now being erected for the working class compel our attention. It is the fact that both the houses themselves and the rooms are much too small; and whilst it is true that in many cases the houses contain three bedrooms, it is equally true that some of these rooms are too small to permit the occupancy of two persons.

If we are to have an A1 population we must look to the future as well as to the present, and these houses, whilst inadequately providing for present needs, will fail entirely against future demands. Even to-day a man with a medium sized family is precluded from occupying them, and in such circumstances it will be seen that the position which will obtain when the children reach such an age as will render necessary the separation of the sexes (a necessity equally in the homes of the people as in Registered Lodging Houses under the Public Health Act), does not lead one to view the future with any great degree of optimism, especially if it is to be viewed in conjunction with the new By-laws of the London County Council which require that 400 cubic feet of air shall be available to each occupant, and, for the purpose of such calculation, provide that a child, no matter its age, shall be reckoned as a person.

I have in my mind at the present moment the case of a man with nine children all crowded together in two rooms. He has on several occasions endeavoured to get into larger premises, and owing to the size of his family, has failed. One of the principal contributory causes to his failure was, of course, the Rent Restrictions Act, under which property owners are naturally reluctant to admit so many children into their houses. The man eventually, and supported by a letter from the Public Health Department, applied to the London County Council for a tenancy of one of the cottages now being erected for housing the people, and has since received a reply to the effect that the Council were not building cottages for eleven persons. For whom then *are* they building? After all, it is notorious that any increase of the population and the consequent perpetuation of the Nation is, in the main, effected by the poor and middle classes, and if children are a potential State asset it is surely part of the National obligation to see that they are decently housed.

I would give as my firm opinion that the present lack of houses is very largely traceable to the present system of rating which tends in every way to discourage building by rating each and every improvement as it is made, and encourages the withholding from use of highly necessary building land by exempting it from rating. Thus it follows that a young married man buys or builds a house. Later on, when his family grows up, he realises the need of more bedrooms. He adds a storey. He builds a bathroom, throws out a conservatory. He has spent his own money on his own house (incidentally giving useful employment to labour) in attempts to conform to a good standard of health, decency and culture. These are not crimes either in morals or law. But they are punished by an increase in the rates.

His neighbour, on the other hand, may be holding up his vacant plot whilst houses are badly needed and builders are out of work. But he pays not a penny towards the rates for the relief of the victims of overcrowding or of those whom he is driving into destitution, and his neighbours, more industrious than he, have to pay his rates as well as their own.

A very simple and potent remedy is just to reverse that system.

The Royal Commissioners on local taxation in their "Final Report on Urban Rating and Site Values" (p. 167), state that "the tendency of our present rates must be generally to discourage building; to make houses fewer, worse and dearer."

The last phase of the housing question upon which I wish to touch is the housing of the aged. You must all at times have felt grieved at the way in which many of the aged poor exist. An old man or woman upon attaining the age of, say, 70 to 80 (and it is well known that ages at death have greatly advanced during the past 50 years), becomes so feeble or

indifferent that he is unable to look after himself or to keep himself clean unless he is within easy reach of some of his family. Sometimes, and more often than not, these old folk are bachelors or spinsters and have no friends. Some pay 3s. weekly rent for the room out of the old age pension of 10s., some have a little more than they would receive through the old age pension, but not sufficient to enable them to employ some one to clean up their home and keep it tidy. At length the Relieving Officer is called in and suggests the Infirmary, but the old person, not being destitute, will not agree. All then that the Relieving Officer can do is to inform the Sanitary Authority, and along goes an inspector. And what does he hear ? " I have worked hard all my life, paid rates and taxes, and I refuse in my old age to be made a pauper." Any suggestion that he may make to the effect that no question of pauperization is involved is not accepted, and the old person flatly refuses to be moved, and at this point, therefore, his care becomes the duty of no one. Here is a position, then, which the State should meet. Up to this episode the State has taken every possible step to protect life, even prenatally. Let it now finish its work by building homes and providing such necessary attendance for these old folks as will enable them to live in peace until the end comes.

In anticipating any objection to the effect that I am advocating interference with the liberty of the subject I would add that there has been no measure of reform of our social system which has not in some degree interfered with some one person's rights or liberty. Both Vaccination and Education, for instance, are cases in point, but are justified by reason of their having been found beneficial to the whole community, and it is for the good of the community as a whole that the Public Health Service exists. I trust that its effort in this direction may be furthered as the outcome of this Conference.

The Necessity for the Provision of Public Abattoirs and the Abolition of Private Slaughterhouses.

By Henry Tunbridge, Sanitary and Foods Inspector, The Maldens and Coombe Urban District Council (Associate).

(Abstract).

PRIVATE slaughterhouses are a relic of bye-gone ages. The present day system prevailing throughout England and Wales, and perhaps to a less degree in Scotland, is most unsatisfactory. No standard or uniformity exists. To obtain efficiency inspections and seizures must necessarily be uniform, not only in the larger towns but in all districts, both urban and rural, where meat is prepared or offered for sale. The only real remedy for the unsatisfactory conditions obtaining to-day is the establishment of municipally controlled slaughterhouses, and the abolition of private slaughterhouses.

Apart from the financial side of the question the argument for the establishment of municipal abattoirs, if supplemented with the power to compel all butchers to slaughter therein, is very great. The comparison between the amount of meat condemned previous to the establishment of the War-time Government controlled slaughterhouses, and after, is sufficient to indicate the enormous value of the scheme.

All meat would be inspected by skilled persons before leaving the abattoir, and stamped. Blood, offal, condemned meat, etc., would be utilized instead of being wasted as is now often the case. The private slaughterhouses and the nuisances and inconveniences associated with them would disappear. The Abattoir should be constructed near a railway siding and where possible near a Refuse Destructor. Examination of animals, ante and post mortem, could be efficiently accomplished. Cold stores would be provided. Compensation for condemned carcases would be necessary. Charges would be made for each animal slaughtered. A standard of inspection should be laid down so that complete uniformity would exist, not only in inspection, but in conditions governing seizure.

It should be made obligatory for Local Authorities to construct Public Abattoirs within a specified number of years.

Where towns are considered too small, groups of towns should act

together, and the Ministry of Health should have power to group such towns and areas.

The Government should provide financial aid to Local Authorities to carry out this scheme. A contribution from the Government of ten million pounds spread over twenty years, *i.e.*, £500,000 per annum, would no doubt see the scheme through, especially when one anticipates that the cost of building will not always be at the high figure obtaining now-a-days. Local contributions to the scheme could be limited so that the amount of loan did not exceed a figure that would necessitate more than a 2d. rate per annum for its repayment and interest.

The great demand to-day is for economy, but public health and sanitation must always be progressive and sure, and a matter of this description cannot be allowed to stand still. One million pounds per annum, half from the taxes and half from the rates, does not seem too large an amount to assist in carrying out an urgent sanitary reform. The institution of the abattoir system is a public necessity and is now very much overdue, especially when it is recognised that we have an educated public whose demands for sanitary reform are ever increasing.

Suggested Improvements in the Legislation Relating to Meat Inspection and Reasons thereof.

By H. T. Taylor, Inspector of Nuisances, Kettering.

(Abstract).

THIS subject is important from many points of view, the question of meat inspection being one of the most important dealt with by Sanitary Authorities.

The general public evince very little interest in articles which actually enter into the system, but often pay great attention to articles of clothing which only come into contact with the body. Thus, a lady will spend a considerable time in contemplating a hat, but will take no interest in the meat beyond perhaps grumbling should it be tough or improperly cooked. Until greater consideration is taken by the public, greater care must be taken in relation to food inspection, and the Ministry of Health should endeavour to remove some of the difficulties under which we labour.

At the present time, in the majority of districts where private slaughter houses abound, it is impossible for an inspector, however energetic and conscientious he may be, to carry out the inspection of animals during times of slaughter as thoroughly as it should be done. Much has to be left to the honesty of the butchers, and while some may act straightforwardly, others, we know, do not. It is, perhaps, only human, should a butcher pay £70 for a high grade beast and then find it tubercular that he should try and smuggle it through.

Then we have the unequal manner in which the inspection is carried out. In many rural and some of the smaller urban districts the inspection is practically nil, and it is, therefore, possible for shady animals to be killed and smuggled into the larger urban districts, or chopping for sausage meat can take place with impunity. This brings before us the urgent need of more systematic inspection of all meat intended for human food, which can only be accomplished by the provision of public abattoirs to cover all districts. Many of us know how the collective killing practised during the war simplified the inspection, and increased the amount of meat found to be diseased. Housing schemes are being insisted upon by the Ministry of Health, but surely abattoirs are equally as essential.

Another matter requiring serious consideration is the question of a Government scheme of insurance for all animals intended for slaughter for food. Many a butcher will smuggle diseased meat through if a heavy loss is likely

to be inflicted upon him by the loss of the carcase. Should he stand to be fully compensated it would be of no advantage to run the risk of selling diseased meat. The scheme to be successful should be for the whole country and administered by a competent authority.

The law also requires greatly strengthening with regard to food unfit for the food of man found on butchers' premises. At present many cases are dismissed by the Justices on the plea that the food was going to be boiled up for pig food. It should be made an offence for any such food to be on the premises unless notice has been given to the Sanitary Inspector.

The regulations with regard to tubercular meat require making more definite, there being different interpretations put on the finding of the Royal Commission by different authorities. In some districts the whole of the carcase of a pig is seized, however small the deposit, while in other districts only parts of the carcase are seized.

Another question requiring attention is that of the preparation of foods such as sausages, brawn, pork pies, on premises directly connected with slaughter houses. When one considers how easy it is for unsound or diseased meat to be used when it is permissible for sausages, etc., to be made up actually in a slaughter house it must be felt that strong regulations are necessary to govern the manufacture of these commodities.

The attention of the Ministry of Health should also be drawn to the necessity of a systematic inspection of all cows and bullocks so that all suspected animals could be kept under observation, while those in an advanced stage of disease could be slaughtered. The proposed Milk and Dairies Order when in force will be a big step in the right direction and should eventually affect in a beneficial manner the quality of animal killed for human food.

Recent Legislation as it affects the Sanitary Inspector.

By Chas. S. Perchard, Chief Sanitary Inspector, Barnes Urban District.

(Abstract.)

Rent (Restriction) Act.

Sufficient evidence as to the working of the Act is not available to provide a reliable record of its operation. Conflicting opinions have been expressed as to whether or not a L.A. should grant certificates where circumstances are in its favour. It must be remembered this is a measure of legislation passed in the common interest of the Public, and it is the duty of a L.A. to support legislation; at the same time the certificate of a L.A. is not conclusive.

Section 3.—Application by tenant to Sanitary Authority for Certificate. Act does not state Sanitary Authority must grant same where circumstances warrant one, but wording implies so.

Section 2, Sub-section 2.—Application by tenant or Sanitary Authority to County Court for order to suspend increases, but in Sub-section 6, Sanitary Authority not mentioned. Questions arising only considered on application of landlord or tenant.

Act purely one for regulating rent between landlord and tenant, although found closely related to. Not a Public Health Act, nor intended as such.

Grounds of Application.

Does the term used imply two standards? Birmingham County Court Judge says Yes! Care must be taken of standard adopted, and wording of certificate.

What is a reasonable state of repair? See definition in Section 2, Sub-section 5. For definition of latter see case of "Proudfoot *v.* Hart," 1890. Report to Q. B. D. Vol. 25.

Housing & Town Planning Act, 1919.

Section 26.—Extending Section 90, P. H. A., 1875. Providing for making Bye-Laws in respect of houses in tenements. Should owner provide separate accommodation in all cases?

Sub-section 4.—Local Authority carries out work in default of owner, can only recover 5 per cent. interest. If loan be needed Local Authority

would have to pay more. Interest recoverable should be that charged on loan.

Section 28.—Extends Section 15, 1909 Act. Latter still in force, date of commencement of tenancy does not arise. Owner's liability limited to houses of certain rental though not repealed, is nullified by wording of Section 28. Owner's option to close house instead of doing work restricted to cases where reconstruction is necessary.

Who are the Working Classes? What is, "in all respects reasonably fit"?

Is the first term limited to the manual worker, if not, where shall we draw the line? Definition given in Clause E. of Schedule, H.W.C.A., 1903, still holds good as to class, but wage limit useless under present condition.

The definition of the second term is given in Vol. 1, of the Manual issued by the Ministry, and though having no legal status, it should be remembered all appeals against a notice on the grounds that re-construction is necessary are made to the Ministry who are not likely to decide against their own standard. Landlord's right of appeal against notice on grounds of same being unreasonable is to Court of Quarter Session. Sec. 35, H.W.C.A., 1890.

Circular Letter, 120, Ministry of Health.
Sanitary Condition of Theatres, Music Halls, etc.

Three things essential :—

Cleanliness.—Sweeping of floors insufficient, they should be washed daily. Use of draperies, curtains, etc., to be discouraged. Upholstering should be in leather, or leather substitute.

Ventilation.—The absence of windows in most halls to be deplored. Unable to flood hall with light and fresh air. Spraying useless except as a deodorant. Exhaust fans to be employed where necessary for extracting foul air.

Sanitary Accommodation.—London County Council standard not far wrong.

Rag Flock Act, 1911.

No reason for delay in action owing to doubt as to the meaning of term "Flock from Rags." Decision in case of "Cooper *v.* Swift," 1914, clears the way. The question of remakes a difficulty.

Necessity of watching both manufacturer and small upholsterer. Temptation to use old material is great.

Standard of cleanliness laid down is reasonable.

Cost of cleaning flock is high, but price of finished article is equally so, therefore, only clean material should be used.

Thirty Years' Sanitary Progress in Folkestone, with Local Experiences.

By John Pearson, Chief Sanitary Inspector, Folkestone (Associate).

AS a preface to my paper, I give a short history of Folkestone. Although of modern aspect to the present visitors, Folkestone is a town of great antiquity, figuring as Lapis Populi of the Romans, and Fulchestan of the Doomsday Book. It had a market granted to it by King John, and it is the birth place of that great benefactor of the human race, Harvey, who discovered the circulation of the blood.

The town was incorporated by Edward II., and its long line of Mayors dates back to the year 1313.

Folkestone is favoured by its position and many natural advantages. Touching on those most essential to a health resort : Situation, Soil, Climate, Sunshine and Rainfall.

Its situation is unique, being built on an elevated plateau, with a south and south-east aspect open to the breezes of the Channel and sheltered on the north by a high range of hills.

Its soil is of light brick earth and greensand, and being of a porous nature, quickly absorbs the rainfall and gives an entire absence of ground fog, damp and mist, which are so common on low lying ground or where there is a heavy soil which causes water to lodge.

Its climate is very equable, with a mild, dry, yet bracing air ; persons coming from a crowded town at once feel the stimulating and invigorating effect of it. The air is never stagnant, so that we enjoy to the full nature's best disinfectants, breeze and sunshine ; the mean temperature is 50 degrees and the range 10·9. When compared with other health resorts, where the range is as high as 14, you will see that we are specially favoured in this respect.

The air of the west of England watering places is very relaxing, and although the difference in mean temperature is only 4 degrees, yet the effect on the individual passing from Land's End to Folkestone has been described thus, " Energy is roused, the nervous system is exhilarated, respiratory function rendered more active, skin tightened, and muscles rendered more capable of more exertion, and less feeling of fatigue."

The average rainfall is under 28 inches, and the number of rainy days is well below those of other watering places.

In addition to these natural advantages we are indebted to those who were responsible for the laying out of the town ; one will see open squares, wide tree planted avenues, and open spaces everywhere, trees planted in

almost every street; in fact, whilst dreamers were dreaming of garden cities, Folkestone was being made one.

Up to the year 1850, and even later, the sanitary customs of the town were of the most primitive character; there was no system of drainage, the stream running through the centre of the town dividing the east from the west portion, and known as the Pent stream, was a kind of elongated cesspool receiving certain drainage and a receptacle of all kinds of solid and liquid filth. About this time the fishing village began to develop into a watering place of considerable note. It then became necessary for the Corporation to set about bringing the sanitary condition of the town up to a more modern standard.

In 1858, that well known eminent engineer, Sir Jos. Bazalgette, who designed the Thames Embankment, was consulted, and he designed the present Sewerage scheme, since enlarged and improved by the various Borough Engineers.

The position of our sewer outfall has not been deemed satisfactory of late, owing to the fact that in recent years the South-Eastern Pier has been considerably extended, causing the alteration of currents of the tides, by which the sewer outfall is now buried in the sand, but not to the extent of interfering with the discharge of the sewage of the town. The sewer outfall is covered by the sea for about 20 out of each 24 hours, and in the sea we have one of the best means of disposing of sewage. One eminent Medical Authority in writing on this subject says, " The truth of the matter is that the sea provides an inexhaustible supply of dissolved oxygen. We have already seen that the object of bacteria contact beds is to secure the oxidation of sewage; in the sea, we have, in my judgment, moving liquid contact beds providing all the oxygen necessary for oxidation. Where then the diluting fluid is thousands of times greater in volume than the sewage entering it, the dissolved oxygen in the diluting water is amply sufficient to effect oxidation," but to effect the removal of the larger solids a revolving screen has been provided. It is proposed to considerably extend our sewer outfall to Copt Point, but this will be a very costly undertaking and must wait until there are improved financial conditions.

Having served this town as Sanitary and Building Inspector for over 30 years, the drainage and sanitary condition of the individual houses has come within my province. At the beginning of this period I found all manner of sanitary defects of the very worst character, such as old pan W.C.'s, D traps, soilpipes not ventilated, D traps perforated, drinking water cisterns over W.C.'s with trumpet wastes discharging into the D traps, or unventilated soilpipes. Old brick and even wooden drains and

other gross defects have been removed and the majority of the houses brought up to a modern sanitary standard.

Water Supply.—The water supply of the town is supplied by a private Company, the daily consumption being about 1 million gallons. In the year 1893, on account of the great shortage of water, I was instructed to report on the quality and quantity of the water supply. At that period there was only an intermittent supply in this health resort, and that quite inadequate, as only 2 hours' supply could be given in the morning and 2 hours in the evening, thus in many instances the storage tanks could not be filled; the total daily yield was then only about 600,000 gallons, whereas the town required 1 to 1½ million gallons. The reservoirs at that time were no better than open ponds without proper lining; a considerable growth of weeds took place in consequence; these, when the reservoirs were low, were exposed to the sun, causing decay, and thus caused a vegetable pollution, the water having a bitter and mouldy taste. The water was not properly filtered; thus you will see the quality and quantity was far from satisfactory. The result of my report was the Corporation promoted a Bill to acquire the Waterworks; the Water Company at the same time promoted a Bill to seek extended powers, and a further source of supply. The Corporation Bill failed, and the Company succeeded in their Bill, but the Corporation got inserted in the Bill reductions of charge equal to about £1,500 on the whole, compelling a constant supply, the provision of proper filter beds and lining of the reservoirs. The Company then got greatly increased sources of supply from the Alkham and Lydden valleys, since which time the constant supply has been maintained, and the water, from periodical analysis, has been quite satisfactory, with the result that that abomination, the storage tank, has become unnecessary for the storage of drinking water, and in nearly all cases a liberal and pure water is now drawn direct from the main.

Refuse Disposal.—Up to so recent a period as 1904, Folkestone had no proper means of disposal of its refuse, the refuse being carted to certain brickfields on the outskirts of the town, there to become a festering nuisance, breeding vermin, as rats, and that worst of germ carriers, the house fly. This insect has been aptly described as a murderer, carrying on the brush-like extremities of its legs a collection of all kinds of foul germs from refuse tips and other foul haunts, and then invading our houses, fouling our food, and thus spreading death and disease in its trail. Dr. Jackson points out that this so-called innocent insect is the chief source of infection, which causes about 600 deaths annually in New York, and about 7,000 deaths from other intestinal diseases.

In 1904 the Corporation, at a cost of £14,830, built a Horsfall Destructor of 3 cells, each cell being capable of consuming 15 tons of refuse in 24 hours ; since its erection there has been a gradual diminution of infantile mortality and other intestinal diseases. It may be of interest to know that the Borough Engineer has added many excellent additions to the Destructor ; for instance all fish offal is converted into a valuable fish manure, for which there is a ready sale at good profit ; a fish oil was extracted, which during the War became valuable. Much of the clinker refuse is crushed and made into bricks for our housing scheme ; plinths, lintels, cills, curbing and fencing posts are also made at the Destructor works.

Milk Supply.—During the period 1896 to 1910, Folkestone suffered from intermittent outbreaks of Typhoid Fever, which caused us great anxiety as to its cause. At the outset I suspected a certain cowman as being the cause either as a dirty wet milker or a Typhoid Germ Carrier. After two Local Government Board enquiries I was able to prove that this milker was a Typhoid Germ Carrier of the most virulent type ; it took me 14 years tracing him through 5 different farms to prove my case, and finally I found him to be the cause of 250 cases of Typhoid and 50 deaths. Since he emigrated to Canada Folkestone has gone back to that immunity from Typhoid it enjoyed previous to his coming into this district in 1896. I would like to mention an instance of the effect of adding Boracic preservatives to milk. A number of inmates of a large house in this district were all attacked at the same time with a form of poisoning ; they had all partaken of a blanc mange ; it was found the milk from which this was made had been heavily dosed with Boracic Acid as a preservative by the cook , the dairyman, and also the farmer. A number of fowls fed on the remains of the blanc mange died soon after. This case indicates the necessity for prohibiting chemical preservatives in milk.

Food Inspection.—Since the adoption of the Foreign Meat Regulations, 1909, the large quantities of various foods imported have required inspection. During one winter as many as 23,000 pig carcases were imported from France, and 350 of these being affected with Tuberculosis were condemned. Since then a very large importation of pig carcases from Flushing, Holland, has arisen, amounting to 102,575 carcases in 1914, besides veal and a great variety of other foods. Although Holland sends all carcases with a Government label attached to the effect that each carcase has been inspected, yet close inspection on this side is necessary to see that their inspection has been properly made.

War Period.

Belgian Refugees shortly after the Commencement of War.—449,154 of Belgian Refugees arrived at this port, many being Belgian wounded, and

also a considerable number of refugees from northern France. As many as 5 Medical Officers were engaged in examining these to detect infectious disease or verminous conditions; an observation house was taken and furnished, to isolate suspected cases, and a Cleansing Station provided for dealing with those found to be verminous, their clothing being cleansed and disinfected. These institutions did good work and prevented infected refugees from carrying infectious disease to all parts of the country.

Enormous numbers of troops were quartered in Camps and Billets in this district, and Folkestone was called upon to provide for the isolation and treatment of infectious disease arising therein. Two large Isolation Blocks were rapidly erected, together with nurses' quarters at the Sanatorium, and over 5,000 patients were treated there.

Over 11 million soldiers passed through this port during the War, and about 80 of our largest houses were converted into rest camps, and the reconversion of these in regard to their sanitary condition and re-decoration has recently been completed, and the town has returned to its normal appearance.

In conclusion, I must admit there is much yet to be done in regard to Housing. An area has been scheduled for reconstruction and many individual houses recommended for closing, but this matter is in a state of suspense until our Housing Scheme for the erection of 200 houses is completed. About 50 of these are already occupied, therefore we hope for a forward move in the near future. Our other great requirement in the town is the provision of a Public Abattoir, as most of our Slaughterhouses are in very bad positions, badly constructed, and impossible of improvement.

The Corporation are anxious to carry out all necessary improvements as soon as the financial condition of the Country and the town improves. Their past efforts in 30 years have been rewarded by a reduction of death rate from 17 per 1,000 to about 10·4, being the death rate for 1920; below this figure it is impossible to expect a reduction in the present state of our environment.

The following took part in the discussions on the papers in this Conference :— Mr. W. G. Cooper (Bournemouth) ; Mr. C. S. Perchard (Barnes) ; Mr. A. E. Hudson (Cheltenham) ; Mr. J. T. Cowderoy (Kidderminster) ; Mr. L. L. Baldwin (Coalville) ; Mr. W. A. Craven (Bath) ; Mr. D. Fletcher (Londonderry) ; Capt. F. J. Cutting (Caversham) ; Mr. A. Brennan (Tilbury) ; Mr. H. T. Taylor (Kettering) ; Mr. A. E. Duncan (Rochdale) ; Mr. W. Martin (Epsom) ; Miss C. Cochrane (St. Neots) ; Mr. G. W. Lacey (Oswestry) ; Councillor Smith (Chatham) ; Mr. A. W. Ritchie (Edinburgh).

CONGRESS AT FOLKESTONE.

CONFERENCE VI.—HEALTH VISITORS.

Presidential Address by Miss GERTRUDE TUCKWELL, J.P., President Women Sanitary Inspectors and Health Visitors' Association.

MY acquaintance with Women Health Officials dates back to the early nineties, when I first met with Mrs. Deane Streatfield and afterwards with Miss Squire, the first women Sanitary Inspectors in Kensington.

In this way I learnt an immense respect from the beginning for the work of the really efficient health official; particularly because in very many instances it would have been extraordinarily unpleasant work, to a great extent monotonous, sordid and uninspiring had it not been for the delightful feeling of human sympathy which was put into it by the inspectors and the big idealism which made them realise how much resulted from improved environment.

But a new class of work, closely allied to that of the sanitary inspectors, was springing up, and about 1905 I remember how the talk about the importance of child life to the nation, and the necessity of educating the mother and helping her to care for the child was rife, having as its outcome the development of the sanitary inspectors' work, which officers, in many cases, took the care of infant visiting in addition to their other duties, while it was at this time that we first met the health visitor proper.

No doubt you remember, as I do, the difficulties of this first undertaking. The health visitors had no proper status, they had no proper pay. I frankly thought that these appointments were being used to further drag down the low salary received by the sanitary inspectors. It was so easy for an unenlightened council to try and make most of their appointments from health visitors, who had no legal status, no definitely defined duties, and whose cheap work could be utilised to do part of the work which must otherwise devolve on the sanitary inspector.

Since then the situation has changed by the great developments of 25 years of work. But with rapid healthy growth there are many difficulties, perhaps incidental, to development. There is no danger so great, particularly in this critical time, through which women are passing in their forward movement, as that which arises from absence of corporate action. That is why I believe in the importance of such an Association as that of the Women Sanitary Inspectors and Health Visitors, at whose meetings you can talk

over questions of policy, avoid overlapping, and discuss how best to obtain adequate recognition of your important work. Vitally important it is though it may be concerned with homely things.

I don't know whether you have noticed how the committee, of which I am a member, the Central Committee for Women's Employment, is trying to occupy and train women by giving three months' classes in home crafts for the unemployed woman with maintenance and allowance.

They are teaching all they can of cooking; a variety of dishes and economy in the use of materials and in the things they use in housework generally, and any craft which can be used in making home more comfortable, and the classes are broken by an interval for dancing and singing, which, considering the arduous life of a home, even mothers may turn to for recreation.

"Homely arts based on careful knowledge and experience should be recognised by health visitors as the foundation of preventive work in the home," we are told. I don't want to under-rate work which is curative, but if I could choose, I would prefer to be engaged in a work which would make cures unnecessary, which would keep people free from all the mass of preventible sickness and misery which now dogs their path, and which would give them a chance of handling their lives as fully equipped and healthy persons.

It is because this preventive work is so important: the work both of the sanitary inspector, who has power to see that the environment is satisfactory, and the work of the health visitor, who cares for the welfare of the mother and child, that I beg you to lose no chance of closing up your ranks and co-ordinating your forces in every way.

It is best, if possible, to combine the offices of sanitary inspector and health visitor in one person. There may be places in which it is better to divide the offices, but in the enormous majority of cases, it must surely be a help when the visitor, who has the legal power of entry and is looking at the structural defects, is able, at the same time to see what is wrong with the inhabitants. Apart from the obvious reason that it is silly to bring two people to do what might be one job, there is the additional reason that by this means you get rid of irritation on the part of the people you have to visit.

If you had been, as I have, on the General Health Lay Council of the Ministry of Health, you would have heard the representatives of big women's associations co-operators and others, voicing this point with a dramatic intensity. People don't like to have numbers of visitors enquiring into their health and happiness. You and I, when we are tired, find it rather a bore, when some of our own acquaintances call for purely social reasons.

Picture what we should feel like if we had to interview instead all the different official visitors, to which the unfortunate working-class home is laid open.

Granted that we must have this health visiting, that it is to your mind and mine of enormous importance, it is desirable that we should not duplicate.

Of course, an enormous difference is made by the people who visit. I have been told of one district where the whole system has been damned, because of the want of sympathy and tact of the visitor. In another district, they say, "Well, of course, it is rather tiresome. You have a visitor coming in just when you are busy, but you can't say that about Miss So-and-So. She is always so understanding, and she always helps us, she is so bright, and she never interferes."

Finally, as an old trade unionist and an intense believer in corporate action, I want to urge on you again the value of combination, of having a society which will consist of public health officials who are engaged in the work. I call all these societies trade unions. I never see the object of applying a different term to the organisations of doctors, of civil servants and of any other black-coated classes What it comes to is this, that really in the interests of the class, the trade or profession which you represent, and, rightly understood, in the interests of the State, of which you are a citizen, you bind yourselves together and use your corporate intelligence to do everything possible to make the work in which your are engaged as efficient as it can be.

One of the great aims of your combination will be the importance of the status of the health visitor. You must interest yourselves in the standard of training which will qualify entrance to your profession. I know that this has very much improved, that gradually qualifications have been required, and that now, for the first time, the Ministry of Health has outlined a training scheme, which, though it has not won definite general approval, is a distinct step in the right direction.

It would be very difficult for me to lay down standards of general education, of theoretical and practical science; how much nursing will be required by the health visitor, whether knowledge of midwifery is desirable, or whether it is not an encroachment on the affairs of the midwife, etc., all which vexed and troubled questions arise directly one begins to consider what a health visitor has to do. I think it is Mrs. Eve who says that you may take it that the health visitor theoretically is one of the most highly qualified and ill paid people who exist, and the impression of bewilderment which came upon my mind after trying to solve the question of qualification in company with a number of people who were supposed to be specially able to deal with it, is unrivalled, I think, by any other problem that has been put before me.

It will be immensely interesting to hear what you yourselves feel as to where the lines of demarcation should be, but this does not touch the point I have tried to make that whatever training you decide on, it should be of the best.

The salaries which are paid in an enormous number of cases are thoroughly inadequate. I would not believe it, unless I had heard it stated on undoubted authority, that such a sum as £125 per annum was offered to a health visitor. This is one of the things that combination has got to struggle with, as I know the Society, of which I am proud to be the President, is doing.

You have got to face the question of salaries from every point of view. You have got to fight it on the ground of equal opportunities. You have got to see that you are tending towards the same salaries as the men. Economically, it is very bad that you should not. You have got to fight on the ground that payment should be, after all, in proportion to the value of work done, and the work which you are doing is extraordinarily valuable.

Never commit that very dangerous mistake of selling your labour cheap because you can supplement it by private means. You must not do this, because, by doing it, you are simply degrading the standard for others who can't live on the offered salary.

I am often told that our protests regarding wages, salaries, payments of all sorts, indicate that we seem to be thinking only of pay. Since we are not living in the Garden of Eden, but in a world in which civilisation decrees that everything which makes for the fulness of life has a money value, leisure for public service, as well as for recreation after work is done, care in sickness, appropriate surroundings, however simple, books, art, music, everything costs money, and, therefore, in reckoning in pounds, shillings and pence, we are simply arguing in terms which civilisation has made indispensable.

As a matter of fact combination stands for all the biggest things of life. It stands for comradeship, for sacrifice of self to another's good, for fighting hand in hand, for everything which makes life worth living, for the necessary possibilities of being a well-equipped citizen.

The most pathetic person I know is the person who lives in isolation, the happiest the one who is a member of some great body.

Like the old woman who, for the first time, joined a co-operative society, I say, " It is so good to belong to something bigger than ourselves."

Health Visiting as Social Service.

By Miss A. Sayle, Housing Sub-Inspector, Ministry of Health.

(Abstract).

I. *What is Health Visiting?* History and development of the work. Growth of the work directly related with growth in activity of the social conscience. Maternity and child welfare work and tuberculosis visiting. Other duties frequently assigned to the health visitor: School nursing, mental deficiency visiting, work in connection with infectious diseases.

II. *What is Social Service?* History and development of the underlying ideals and of the practical results. Mediæval ideals and achievements: schools, hospitals and almshouses. The industrial revolution: the right of "free bargaining" and its result. Francis Place's model factory, 1820. The duty of social service partially realised by the community in relation to its most helpless members, *i.e.*, infants, invalids and the aged. The first Factory Acts, the first Education Act, and the first Public Health Act. The Notification of Births Act, a younger member of this great family.

III. *Health Visiting and the Spirit of Social Service.* Health visiting, the branch of social service primarily connected with the care of mothers and babies. In common with other branches, *i.e.*, the treatment and nursing of the sick, the education of children, the safeguarding and humanisation of industry and the care of the aged, the work is in a transition stage between being the result of voluntary effort and a branch of the Civil Service. The great virtue of voluntary effort is the ideal which inspires it. The great virtues of State and municipal effort are permanency and completeness. Need for preserving the spirit of social service in official work.

IV. *Co-operation with other branches of Social Service: (a) official; (b) voluntary.* Official: other officers of the Public Health Service, the Education Service, the Factory Inspection Service, the Poor Law Service. Voluntary: Voluntary Infant Welfare Centres, Voluntary Tuberculosis Dispensaries, Voluntary Hospitals and Voluntary Relief Agencies. If co-operation is to be vital, the Health Visitor must possess knowledge and breadth of outlook. Knowledge can best be acquired by training: need for the recognition of University Social Study Diploma courses as part of the training of a Health Visitor. Breadth of outlook essential to inspiration. A vision of the unattained essential to achieving the attainable.

Among those who took part in the discussions were:—Miss Norah March (London); Prof. A. Bostock Hill (Bembridge): Miss A. E. Moss (Battersea); Dr. J. A. Fairer (Leicester); Mrs. E. A. Warren (Leicester); Dr. Arthur Wilkins (Stafford); Dr. Rocyn-Jones (Newport).

Dr. Truby King's Method for the Preservation and Restoration of the Breast Milk, adapted for District Use.

By Miss Hester Viney, Health Visitor, Battersea.

(Summary.)

EVERY mother can, if she will, suckle her child.

The preparations for breast feeding begin in the ante-natal period, and are both mental and physical.

The critical periods of nursing can be overcome by a simple routine of healthy living. The breast milk can always be restored if the weaning has not taken place over too long a period.

Methods of restoration include water drinking by the mother, with the regular stimulation from the suckling of the child, and in some cases a little supplementary feeding as well.

It is vital to the health of the race that the babies be breast fed for the first nine months.

A Plea for Closer Co-operation between Health Visitors, District Nurses, School Nurses and Midwives.

By Miss Elizabeth M. Wyatt (Associate).

THE advantage of closer co-operation between Health Visitors and the District Nursing Associations, School Nurses and Midwives appears to be threefold :—

1. It should minimize expenditure and overlapping.
2. It gives greater efficiency in the work.
3. It conduces to better feeling between the workers in the various branches of Health work and the Mothers in the homes.

It is admitted that in character all Health work is either Preventive and Educational, or Curative, and this fact is demonstrated as we consider the part played by The Sanitary Inspector, Health Visitor, School Nurse, Midwife and District Nurse, not forgetting the activities of the various centres in connection with the above : The Welfare Centre, Ante-Natal Clinic, School Clinic and others. To obtain the best results the closest co-operation is called for.

Let us take the four classes of Health Workers under consideration, and we shall, I think, agree that the work of the Health Visitor and Midwife is essentially *Preventive* ; that of the School Nurse and District Nurse largely *Curative.*

Taking more especially the work of the Health Visitor, which is both Educational and Preventive, the part which is possibly the most difficult and calls for the maximum of tact is the Ante-natal visiting and supervision, and here co-operation with the District Midwife is most valuable.

It is, I believe, an accepted fact that about 70 per cent. of the births in this country fall to the Midwives. Numerically, therefore, they are to be reckoned with.

In districts where the midwife is known and liked, her influence with the mother is almost unbounded. At a very early date the expectant mother will often confide her condition to her. This gives the Midwife every chance of ascertaining the state of the mother's health and of giving good advice. But generally the Midwife is too busy to give the requisite ante-natal care and visiting, and where the spirit of co-operation exists between herself and the Health Visitor, it is in her power to make it easy for that Official to enter the home ; often by a few judicious words to the Mother, and by recommending her to attend the Welfare Centre and Ante-Natal Clinic.

Thus the Health Visitor is brought into close touch with the Mother. If she, on closer acquaintance with the expectant Mother becomes aware of any condition that calls for Medical advice, she will, if wise, recommend no steps being taken without the knowledge and support of the Midwife with whom the woman has booked, and at the Ante-Natal Clinic, should an examination be necessary, arrangements should be made for the Midwife to be with her patient.

Lack of co-operation on the part of the Midwife with the Health Visitor has been due in many cases to the fact that the Midwife fears undue interference and a weakening of her influence. Remove that feeling and no doubt the co-operation will be closer.

Should an expectant Mother suffer from any condition that, in the opinion of the Doctor, needs actual treatment or nursing, the services of the District Nurse are required. Many cases of Ophthalmia Neonatorum would be prevented if *all* cases of discharge (however slight) in the pregnant woman were reported and treated *before* the birth of the child. Now it is obvious that such treatment cannot be carried out by the Health Visitor, and the practising midwife is debarred from doing so by the rules of the C.M.B. It would, therefore, appear to be work for the District Nursing Association.

In such cases as Miscarriages accompanied by fever, again the services of the District Nurse would be valuable, instead of, as is found, such cases being sometimes nursed by midwives and sometimes not nursed at all.

Turning our attention to Post-Natal ills, surely cases of Ophthalmia Neonatorum should be attended by the Nurse and not by the Health Visitor, nor by the Midwife. I venture to think that in no case should the Health Visitor be asked to do this, as such cases need regular treatment, generally four times a day. Also many Health Visitors do not possess the necessary knowledge or skill, as they are not always trained Nurses.

In her daily visiting the Health Visitor must come upon many other cases that call for actual Nursing. Take the case of a Mother who, after the Midwife has ceased attendance, developes an abscess of the breast, and at great inconvenience in her weak condition attends the Out-Patient Department of a Hospital *every other day* for treatment, in the intervals doing the best she can for herself with the help of a neighbour.

In Tuberculosis Visiting, again, cases are frequently met with where the visits of a Nurse would be an inestimable boon to both the sufferer and the friends. I would suggest that such cases being reported to the M.O.H., the services of the District Nursing Association be *systematically* called in, and such services would be rendered gladly.

In speaking recently to the Superintendent of a large District Nursing Association, she told me that it was a matter of real regret to her Association that a large number of cases in which Nursing was needed were not brought to their notice, although in many instances some Health Official had visited the house. This was possibly due to a lack of definite instruction to the different Health Visitors and certainly to no lack of good feeling, as in this town the most friendly relations exist between the Health Authorities and other activities.

I would plead for closer co-operation between Health Authorities and the District Nursing Associations throughout the country, and that definite instruction may be given to *all* Health Workers, so that where the case calls for more than Supervision, the need may be supplied with a minimum of delay.

And now I revert to my first point, that co-operation means a minimizing of expenditure and overlapping, and in this way, too, makes for efficiency.

By efficiency, do we not mean : " Obtaining the *best* results with the *least* expenditure of force, time, and money ? "

Surely at this time of financial trouble this argument weighs.

It should be possible to eliminate some of the overlapping which goes on around us, in some areas more than others. As an illustration of this

overlapping, I mention the following facts : Recently an Inspector, while visiting a District Nurse went with her to the house of one of her patients, a young mother suffering from pneumonia ; while there she noticed that the baby had a sore mouth. Nurse said she did not give advice about the baby as the Health Visitor visited the child and might feel it to be interference. Shortly after a boy of six came into the room with a discharging ear : again advice and help could not well be given as *this* child was visited by the School Nurse, both Health Visitor and School Nurse having to come a considerable distance. Here were three qualified persons visiting one home, and nothing to prevent all three coming together !

This same Inspector while on her round came to another Nurse in a small seaside town. The Nurse, an active woman, complained that the work was not sufficient, she had been used to a busier district. In the train with the Inspector travelled a lady with a cycle and attaché case. This was the County Health Visitor, who had come a considerable distance to visit the babies, most of whom had been attended by Nurse herself. In both these instances the Nurses were trained women of sound experience. Surely in such circumstances we are confronted with waste of force, time, and money ?

In conclusion, I commend to your thoughtful consideration what appears to me and to other practical workers a solution of this problem of overlapping and undue expenditure.

That the country, towns and cities be mapped out into *workable* areas. In each area a fully trained Nurse, who shall act as Nurse, Midwife, Health Visitor and School Nurse.

It is necessary to emphasise *workable* areas, so arranged that Nurses may be in touch with each other and able to give mutual help if occasion should arise.

These areas should again be grouped into Districts, each with its District Superintendent, who would act as Inspector of Midwives and District Nurses, supervise the Health Visiting and School Nursing, and be responsible for the standard of the work in her District.

Possibly such a scheme would entail the employment of more Nurses, and at better salaries, but even so, much money that is now being spent in unnecessary travelling would be saved, the privacy of the home would be safeguarded, and a better feeling engendered among the parents.

The Trained Nurse in Public Health.

By Miss H. Weir, Superintendent Health Visitor, St. Helens.

A DISCUSSION on the training and qualifications most suitable for a Health Visitor is particularly opportune at the present moment because the scheme of training outlined by the Board of Education in a circular dated July, 1919, has apparently not met with the measure of success which its sponsors possibly desired.

The question of the value of general training is a matter in which there has been some difference of opinion. Perhaps this disagreement is due to two causes :—

(*a*) When Health Visiting was begun it was not realised that it would eventually provide a wide field of employment for women, and many of the pioneers were voluntary workers whose only qualification was a keen interest in social welfare.

(*b*) The scope of the work now entrusted to health visitors is much more extensive than ten or fifteen years ago, when the activities of the home visitor were mainly directed towards the prevention of infant mortality.

Even in the early stages of the home visiting movement these voluntary workers, to whom great credit is due, soon began to realise the necessity for some further knowledge and sought to qualify themselves by obtaining the certificate of the Central Midwives Board, by attending the local children's hospitals, by qualifying for the certificates of the Royal Sanitary Institute, and in various other ways. Then trained nurses were appointed in increasing numbers, until at the present time a large number of Health Visitors are fully trained nurses.

Generally speaking, local authorities to-day are anxious to get the best results in health work, and it is now becoming clear that this can only be done by having a trained and efficient staff of workers.

There is much to be said here for the hospital or infirmary trained nurse. During the time she has spent in hospital she will have acquired a great deal of knowledge that will be indispensable to her in public health work. An experience of discipline, self-control, self-reliance, precision, observation, tact and loyalty extending over some three years. In ward management she learns to be controlled and to control others, to consider the fact that she is one of a community and must exert herself for the common good.

These qualities are essential to a woman who would undertake even a small position of authority, and cannot possibly be assimilated by a candi-

date for the health visitors' course prescribed by the Board of Education, a course made up of a few months spent here and a few months spent there, studying varying subjects in the hope that, combined, they may make a good whole.

Neither trained nurses, nor health visitors, the products of the special course of study, possess a monopoly of wisdom, but it is suggested that the trained nurse starts with a great advantage apart from her foundation of technical knowledge.

There are those who will argue that the trained nurse does not make the best health visitor because her work is hampered by the emphasis she places on sickness and the cure of sickness as opposed to the study and maintenance of normal health.

If this is so, and one does not admit it, then she is either that individual who cannot see two sides to a question (and instances can be found in any profession), or her nursing training has been at fault.

Who can better teach the practical application of the laws of health than the person who daily observes the illness and waste of life occasioned through the want of knowledge.

Practical experience in the nursing of acute illness, attendance in out-patient departments, in accident wards, and in special departments set apart for certain diseases and defects of the eye, ear, nose and throat are the best foundations on which to build up a knowledge of the prevention of disease. Every day we hear that it is wrong to separate treatment and prevention in the education of medical men. Do not the same reasons hold good in the training of a health visitor ?

The prevention of a disease is often best brought about by the treatment of some sufferer, and yet it is sometimes considered that a few months' work in a hospital will be sufficient to qualify a visitor to instruct a mother in home nursing or first aid.

The best material for this work can be got from the recognised training schools for nurses. Training should begin at 18 or 19 years of age and continue for four years, the certificate being granted after examination at the end of the third year. During the last year the nurse should hold the position of staff nurse and should be allowed to attend lectures, given preferably outside the hospital, and be granted facilities to work in the public health department of the town to gain an insight into the routine, with attendance at the infant consultations, maternity centres, school clinics and tuberculosis dispensary. She should, if possible, obtain the Health Visitors' Certificate of the Royal Sanitary Institute during this period. She should then enter one of the maternity hospitals and sit for the certi-

ficate of the Central Midwives' Board. In some instances this can also be obtained from her training school.

Thus a candidate can be qualified in little over four years.

At the completion of this training she could be attached to a public health department as a probationer health visitor at a living wage for six months, under the supervision of a trained health visitor. At the end of this period we should have a woman well qualified to carry out the usual duties of a health visitor.

Let us define some of these duties :—

1. The care of the unborn child in ante-natal work.
2. The care of the child from birth to school life.
3. The care of the school child.
4. The care of notified tuberculosis cases of all ages.
5. The inspection of midwives.
6. The investigation of infectious diseases.

These are only a few of the duties required of a health visitor, and, looked at broadly, they cover a wider field than was ever contemplated when the appointments were first made. She must be able to combine several functions, or the usefulness of her work is impaired by having different officials visiting the house to advise different members of the same family and in the end no one being held responsible with regard to home conditions. Her work depends on gaining the confidence of the mother, who values and respects a woman who is thoroughly capable and can give advice on various subjects that may arise from baby feeding, sanitary defects, the condition of a school child, to a refractory daughter in her teens. The nurse is more likely to obtain the best results if she can arrest the attention of the mother as a friend whilst performing the work of an official. She cannot do this if several health officials visit the same house, as the harassed mother has neither the time nor the inclination to answer the door to them all. The mother being the pivot of the public health should be the person to be considered in determining the administration of a town.

It is to be feared that some local authorities are influenced in their choice of untrained candidates by the attraction of a smaller salary. In business it is usually said that the cheapest article generally proves the dearest, and there is reason to believe that the same axiom holds good in public health appointments.

Health visiting will continue to attract women of trained minds and ability to make it into one of the most honoured of professions for women, and health authorities should at once see that they get the best possible materials to help them to build up a healthy, happy nation. There are at hand 20,000 nurses on the College of Nursing Register alone. Of these, some could be spared for this important educational work, who would by the result of their labour justify the faith placed in them.

Economics and Public Health.

By Alexander Farquharson, M.A., Hon. Secretary, Civic Education League.

(Abstract).

ECONOMICS, as generally conceived, is concerned with the production and distribution of wealth. There is no general agreement on the nature of wealth ; the word may mean goods, money or credit.

For the social worker, however, Ruskin's definition of wealth seems the only one appropriate : " There is no wealth but life." Economics, for the social worker, is the exact study of how people live. This study has two divisions, corresponding to the material and immaterial aspects of life.

Further, it is not an abstract or general study. It must take full account of the environment in which life is carried on ; it must consider each type or variety of life as a whole ; it must be related as closely as possible to biology. The economist, in this sense, is the biologist of social life.

Again, the study of economics from this point of view requires the sympathy and enthusiasm that the social worker brings to his practical tasks.

This view of economics differs from the current view in its emphasis on consumption rather than on production and distribution, and on personal and domestic life rather than on great economic enterprises. It is, in consequence, the only view which is consistent with Public Health work.

Now, all our difficulties in public health work to-day (except those due to lack of scientific knowledge) arise from a false economic theory ; and every health worker ought to understand this, and take the other side.

What is this false theory ?

It is, in a word, that man was made to produce goods, goods to produce money for individuals, and money to produce credit for individuals. This is the generally accepted doctrine, on which all our present day manufacturing, commercial and industrial activity is based. Many people find difficulty in believing that this is so : but it is recognised by all who are in contact with the realities of economic life, and is often defended as " the only way."

We see the results of this false economics in every department of public health work. Housing is an outstanding example. The new credit in the form of increased health and energy, attaching to the provision of new housing accommodation cannot be retained by those who provide houses ; hence the unwillingness to provide them. In the case of education the same considerations apply, and we find similar apathy, misunderstanding and opposition.

It is not suggested that there exists any immediate or universal remedy for this state of affairs. The essential thing is to alter the current view of economics, and this will come as much through discussion on practical affairs as through lectures and publications. We can, at least, all take the first step of getting our own views clear.

CONGRESS AT FOLKESTONE.

CONFERENCE VII.—RAT OFFICERS.

National Research on Rat Destruction.

By C. L. CLAREMONT, B.Sc.(London), F.I.C., Research Chemist, Rats' Branch, Ministry of Agriculture and Fisheries.

(ABSTRACT).

THIS paper gives some account of the work carried out by the Rats' Branch of the Ministry of Agriculture and Fisheries, especially that done at the Rat Research Laboratory and Rat Bait Factory during the past 12 months, and deals shortly with the theory and practice of Rat Destruction.

There is no need to emphasise the importance of rat destruction.

The facts are not new. For some years vigorous propaganda has been carried out by the Vermin Repression Society; it was not, however, until war conditions had rendered the problem even more pressing that the Government took action.

The matter was then taken up by the Ministry of Agriculture and Fisheries and the Rats' Branch was organised in January, 1919, under the direction of Mr. F. A. Fulford, with Mr. E. C. Read as Technical Adviser.

During the early part of 1919, experiments were carried out by the Zoological Society under the direction of Mr. E. G. Boulenger, F.Z.S. These experiments were directed to discovering the most suitable poisons to use and the best baits to incorporate them with.

In general the results pointed to the usefulness of Barium Carbonate and Red Squill (Scilla Maritima).

Eventually, in December, 1919, the Rats and Mice Destruction Act was passed.

Under this Act the powers, both of the Ministry and Local Authorities in relation to the public are administrative, that is, neither have power actually to undertake the work of rat destruction as such, except in so far as they are themselves occupiers within the meaning of the Act, or in cases of default. Many Local Authorities, however, do make or supply baits and treatment on payment, and a self-supporting scheme on these lines is possible.

As regards the Ministry of Agriculture, on the advice of Mr. E. C. Read, it was realised that research on this subject was urgently needed, and a research laboratory was established in 1920 for work on this subject; a

very small staff of Assistant Technical Advisers was also trained and stationed in the provinces so that advice and assistance should be readily available.

As the various Government departments were occupiers under the Act, it was further decided to run a small factory in conjunction with the laboratory for the purpose of supplying suitable raticides for use on Government premises.

Incidentally, the necessity for some such scheme was strongly advocated in the report of the Zoological Society's experiments, also Major Kunhardt, I.M.S., strongly advocates international research on this subject.

Quite apart from the fact that the Government are occupiers under the Act, there is an intimate relationship between the work of the Rat Bait Factory and that of the Laboratory, for it is unsafe to draw deductions from experiments on caged rats, without having the opportunity to make practical tests on a fairly large scale.

Many people are apt to think, especially in these days of urgent need of economy, that research and technical knowledge on this subject are a waste of money and that rat destruction is a simple matter.

Those of you who have had practical experience will agree that this is not the case.

I, therefore give a short account of the nature of the work which has been done in the Rat Research Laboratory, reminding you that it is a new venture barely 12 months old and that very little money was available for equipment and maintenance.

The work of the Laboratory consists in the chemical examination of various proprietary raticides on the market as well as many rat poisons which are supposed private secrets ; raw materials purchased for the factory or submitted from outside sources are examined and toxicological analyses made in cases where rat poison was suspected.

Actual tests on live rats are also carried out whenever necessary to ensure that the preparations are really toxic and to test whether in the form submitted they are sufficiently attractive to rats.

A large amount of work done at the laboratory has been at the request of firms who either manufacture or are desirous of manufacturing raticides and are anxious to ensure that their preparations are toxic ; this is especially the case with Squill preparations.

In addition much work of a preliminary nature has been done on the subject of Red Squill, Scilla Maritima, and the best method to use it ; little work has been published on this subject and this is not readily available, being scattered in various German books : consequently progress is slow. Some tentative work has also been done on Urginea Burkei, a South African variety of squill which also appears to be toxic to rats.

Squill, in the form of powdered drug, appears to vary somewhat in toxicity as might be expected, but for average powders the minimum lethal dose for rats seems to be about 250-500 milligrams per kilo body weight, or say 1-2 grains for a rat of ½ lb. weight; there is little difference between tame and wild rats; if anything, the latter are the more susceptible.

As regards Barium Carbonate, the minimum lethal dose is slightly higher, being about 2 grains for a similar sized rat.

Experiments have also been directed to testing relative palatability of various vehicles, and the results so far obtained tend to confirm Mr. Boulenger's conclusions, shortly, the plainer the better. Attention has also been given to testing possible alternative poisons to those now in use, so far with inconclusive results.

A few words on the factory work may be of interest and I hope helpful. It is run on quite a small scale, the staff being two men and a boy. The object of the factory is two-fold, and it has justified itself on both counts; without it, much of the work of the laboratory would be incomplete, for it enables one to check laboratory results by field trials, though, of course, this is never done till it is justified by thorough preliminary investigation.

In general, the treatment applied has been successful in either ending the nuisance or greatly reducing it; many of the buildings treated are in badly infested areas and continuous efforts have to be made to effect a permanent improvement, but even in the worst cases persistent effort with varying bait, supplemented, if necessary, by trapping, has succeeded.

The organisation of this work is two-fold; in London the Office of Works have a small staff of rat officials who were trained by Mr. Read and myself. They work directly under my control, complaints being sent to me. These men then apply suitable treatment, referring to me in cases of difficulty, when either Mr. Read or I personally inspect the buildings; in addition to this, bait is supplied on application for use at H.M.O.W. Buildings in the Provinces, Admiralty and War Office Establishments, both at home and abroad, and other buildings and areas occupied by Government departments.

To come to the second part of my subject, the application of our present knowledge to rat destruction; in short, how can we best and most cheaply kill the rat?

The methods in use may be considered under four headings. Hunting, trapping, infection by disease, and poison.

The third method is the Virus method. When this was introduced some years ago, it was hailed as a great advance in scientific rat destruction, but experience has hardly justified the claims made for it, in fact, most of the

manufacturers of Virus now make Squill poison as an alternative, should the Virus fail.

There are fundamental objections to the use of this and similar methods. You may not all be aware that Pathogenic Fungi have also been suggested and I believe actually used for this purpose.

These objections are firstly, varying susceptibility of the rats to a disease, hence 100 per cent. deaths is hardly likely; secondly, sub-lethal doses tend to immunise the rats to that particular organism, and so a relatively immune race of rats would be evolved; thirdly, the risk of the organisms used either being initially pathogenic to other animals or developing in its passage through the rat a higher virulence which might affect even human beings.

Poison, the fourth method, is by far the most important; it can be used with proper precautions anywhere, and when properly used is remarkably effective.

I will deal first with "gassing." This is one of the most effective methods when the conditions are suitable, and has one great advantage over all others in that it kills the females and litters in their nests. Various gasses have been suggested; chlorine, phosgene, sulphur-dioxide, hydrocyanic acid and carbon bisulphide.

The last two are very effective, but possess serious disadvantages, the last being very inflammable and so requiring great care; and the former being excessively poisonous, having little or no smell, and being colourless, its use even by skilled operators presents grave danger. Chlorine and phosgene have points in their favour, but are rather dangerous for general use; the great disadvantage of these is that they have to be handled compressed in cylinders, and anyone who was in France and had anything to do with a special R.E carrying party will know they are not particularly light.

Sulphur-dioxide, on the whole, is the best agent at present in use. It is effective and easily handled either as liquid or prepared on the spot by burning sulphur; it is not too dangerous, moreover, its smell is sufficient to warn the operator not to breathe too much. I believe the Clayton Gas people now advocate a mixture of S.O.2 and S.O.3, which is said to be more toxic and not only to kill the rat but all its attendant parasites.

Having dealt with gassing let us consider ordinary forms of poisoning with solid or liquid baits.

There is no difficulty about poisoning rats so far as merely killing them with poison is concerned; in fact it is easy, the rat is rather susceptible than otherwise to poison: this being the case, why is our choice comparatively limited? Let me remind you of the habitat of rats and mice; they are ubiquitous, living in our houses, stores, factories, offices, barns, stables and

open places such as refuse tips, sewage farms, hedgerows, banks, etc. It is obvious, therefore, that the poison used should be suitable for all these different places, and as the rat lives among us and our domestic animals and feeds on our food stores the choice must fall on a poison which will be relatively harmless to ourselves and to domestic animals.

Are there, then, rat poisons available which are not poisonous to other animals ? I can do no better than to quote Dr. Rabiger : " I have come to the conclusion that preparations which are really non-poisonous are unable to kill rats; and poisons, call them what you like, if they kill rats will also kill domestic animals ; in other words, there is no poison in existence which will only kill rats."

The solution of the problem, then, lies in the relative danger to rats and other animals. In general, the lethal dose of any poison depends on the size of the animal, and though the actual lethal dose, per kilogram body weight, tends to decrease with increase in size of the animal, fortunately the rat is a very small animal and happens to be peculiarly susceptible, for it has a very delicate stomach, and cannot vomit, at any rate, does not readily do so.

Before going further it will be as well to consider what are the desiderata for a practical rat poison. It should satisfy the following conditions :—

(1) It must be relatively harmless to domestic animals.
(2) It must be cheap and readily procurable.
(3) It must be effective on rats and mice, that is, reasonably small doses must kill for certain.
(4) It should be tasteless or at any rate not have a repellent taste.
(5) It must be easy and clean to handle and be readily incorporated into the vehicles necessary for making the baits.
(6) It should keep well and retain its toxicity.

There are not many poisons which satisfy these conditions, and of those Barium Carbonate and Red Squill have been found to do so the best, though neither are absolutely ideal : Barium Carbonate satisfies conditions 2-6 admirably, but is rather more toxic to other animals than one would like. Still, if reasonable care be taken, preparations containing it can be widely used. Squill on the other hand is considerably less toxic to other animals; it is fairly cheap, the supply in this country is somewhat irregular but improving. The disadvantage lies in satisfying conditions 5 and 6, for the bulbs are rather irritating to handle (it is advisable to use thick leather gloves), and there is difficulty in making preparations which keep well; however, this last is gradually being overcome as the result of research; for instance, in the case of Squill extract, experiments show that with simple precautions the preparation keeps toxic much longer than one would expect.

Again, both laboratory tests and practical experience point to the great value of preparing Squill baits by methods involving heating; if this is properly done the toxicity remains for a considerable time, whereas in bait containing raw bulb this is not the case.

It remains to see how the lethal doses of Barium Carbonate and Red Squill Powder for rats compare with those for other animals. Unfortuantely, there is a good deal of uncertainty on this point, especially in the case of Squill.

The following amounts of Barium Carbonate have been recorded as fatal. I quote the authorities as, up to the present, I have not been able to investigate this point fully.

Assist.-Surgeon Chitre gives :—

Cats	5/15 grains.
Fowls	10/20 ,,
Dogs	40/140 ,,

The U.S.A. Department of Agriculture gives :—

Chickens	16 grains.
Sheep	44 ,,
Horses	132 ,,
Cattle	440 ,,

Wynter Blyth quotes a fatal case in which a human being took 60 grains.

The available information as to Squill is very scanty.

Abderhalden describes a toxic substance isolated from Squills, which he calls Scillain, and states that the lethal doses per kilo body weight are as follows :—

Rabbit ...	2·5 milligrams	1/26 grain. approx.
Cat	2·0 ,,	1/32 ,,
Dog	1·0 ,,	1/65 ,,

He does not state the proportion of this substance in the bulb, and other toxic principles are generally supposed to be present. Practical experience, however, supports the view that the safety margin for Squills is greater than for any other practical raticide at present in use.

We have now to consider how to prepare suitable baits; for whatever poison is to be used its success depends not so much on its actual toxicity, but on whether it is presented in a form which is acceptable to, and readily taken, by the rodents. Apart from mere palatibility, several points which are often overlooked require consideration.

For instance, what should be the size of the bait and what amount of poison should be in it?

I find caged tamed rats will eat, on the average, about one-tenth of their body weight per twenty-four hours; one bait, therefore, should be of such

a size that a hungry rat will eat it all, and should contain such an amount of poison that one complete bait should certainly kill, and a portion, say half, still give reasonable chance of success. On the basis of a ½ lb. rat baits of 30/60 grains, that is, from one-tenth to one-fifth of a day's intake of food, should be readily eaten by a rat even when not particularly hungry; and, in general, this is about the size of the bait made at the factory.

This weight, then, should contain a good lethal dose. To produce this we use the following percentages of toxic agent in the baits prepared:—

		grains.		*grains.*
Arsenic	5%, each bait	20	containing	1 toxic agent.
Barium carbonate	25%, ,,	30	,,	7½ ,,
Squill Bulb ...	20%, ,,	50	,,	10 ,,
Squill Powder ...	20%, ,,	25	,,	5 ,,

Some of the points for the preparation of a successful bait are the following: It should be ready for use and easy to handle. Operations, such as spreading on bread and so forth, should be avoided.

It should, if possible, be in such a form that guessing the amount required for a bait is unnecessary, though if this cannot be done the amount should be clearly stated in common measures, such as "teaspoonful," etc.

It should be in a form capable of being applied without excessive handling, *i.e.* by means of a long-handled spoon or piece of wood.

The baits should be attractive to the rodents. This can only be decided by experiment and observation, on a laboratory scale, followed by actual field trials. The baits should be fresh; rats don't like stale food, and will always eat fresh if offered. Each toxic agent should be prepared in a variety of baits, so that if one kind is not taken a change can be made.

The best general vehicle is a mixture of oatmeal and fat so as to form a hard paste. Variety can be readily introduced in the way of fish or cheese. Another good method is to mix the poison with flour, make dough with water and bake small biscuits; fishmeal up to 20 per cent. of the flour, or the addition of syrup or sugar form useful variants. The following varieties are used at the factory and, up to the present, have proved sufficient.

Barium Carbonate baits are made in several paste forms, plain, fish and cheese varieties all being used; two flour biscuits, one plain and one sweetened, as well as tablets containing cheese in addition.

For mice, coarse powders, similar to the pastes for rats, but with much less fat, are used. Three kinds are made, *i.e.*, plain, cheese, and fish.

Squill preparations are made on much the same lines (biscuits and a cake containing cheese being the most useful) both chopped bulb and powder being used as desired. Only one paste form is used, but, being uncooked, is only suitable for immediate use. Squill is also made in the form of liquid extract.

All baits which have no natural odour, such as fish and cheese, are slightly flavoured with aniseed. Some difference of opinion as to the advantage of this exists, but the consensus of opinion seems to favour it. My experience points to the fact that black rats prefer biscuits or cake baits, and will seldom take fatty pastes.

The use of biscuits or tablets has the great advantage that the amount of toxic agent per bait made is easily controlled, and this compensates for the disadvantage that they are troublesome to make. I am of opinion that with rat bait, as with any other commodity, elegance of preparation is an asset for success, and we are continually experimenting to produce baits that can not only be easily made by unskilled operators, but sent out in such a form that the toxic dose per bait laid is known.

Fortunately many firms now provide preparations containing Barium Carbonate or Squills, the latter usually in the form of a liquid extract; nevertheless the supply at present of really elegant and effective raticides is limited.

To conclude, there is more in this subject than is generally supposed, there are many problems awaiting solution, and there is urgent need for continuing investigations.

In the discussion various speakers testified to the fact that the research work undertaken by the Ministry of Agriculture was generally appreciated, and especially the efforts to discover an agent toxic to rats but harmless to other animals.

An Aspect of Rat Prevention.

By W. H. Dalton, F.Z.S., F.R.H.S., Rat Destruction Supervisor for the County of Monmouth (Associate).

(Abstract.)

RATS can easily outbreed ordinary destructive measures so long as nothing in the other direction is inaugurated, and strictly carried out preventive measures directly influence the prevalence or otherwise of rats.

Concrete bases to buildings, concrete or adamant walls, and, in the case of out buildings, sheet iron in concrete bases or brick in concrete bases, coupled with an intelligent supervision to prevent ingress or egress of vermin always more than paid for the expenses entailed.

Driven to the fields and hedgerows by prevention of harbourage, the rat in the country has all it can do to hold its own in cold winters provided it cannot come in to feed and rest. Rat-proof protectors to stacks would largely prevent a source of supply in that direction, and an intelligent supervision in the feeding of stock and the leaving about of unnecessary food encouraging the presence of rats, is worth serious consideration. It is next to impossible to cut them off from large mangold or potato clamps, but it is not impossible to prevent their easy access to granaries and stores of meal in bins. Kept largely to the open, rats and mice have to contend not only with equally alert and quick enemies such as stoats, weasels, owls and kestrels, but they have to contend with their fellows for a supply of food. A diminution of the readily obtained forms of food would make life harder for them. In town centres the general idea is equally applicable, *i.e.*, prevent safe harbourage, then rats are compelled to travel from spot to spot and can only rest where invited by burrowing conditions. Relegated more and more to such few remaining spots, they can there be easily dealt with.

The existence in all districts for immediate destruction of all refuse by fire or heat again must handicap the rat population, and it is only in mines (where it is practically impossible to effectually deal with rats) that they can remain unmolested if precautions of this kind are generally and not exceptionally taken.

Open refuse dumps become excellent feeding and resting grounds for rats.

It is essential that more modern methods should be instituted for the immediate disposal and destruction of refuse by fire.

Vermin Repression.

By ALFRED E. MOORE, Hon. Director, The Incorporated Vermin Repression Society.

(ABSTRACT.)

THE main objects of the I.V.R.S. are to bring about the ordered, enduring, merciful, and *synchronised* destruction of rats and mice, and to work in close co-operation with the Ministry of Agriculture and other Government Departments. The Society is having a stiff fight against apathy, popular ignorance, and the disinclination of many authorities to use the powers conferred upon them by the Rats and Mice (Destruction) Act, 1919. It may

truthfully be said that my Society's wandering through the wilderness might have persisted until the present day, but that the German submarine menace causing a food panic, forced public opinion to take action against rats that were levying a heavy toll upon our scanty larder; this state of affairs practically consolidated my Society's position as a national institution, and when Lord Aberconway, then as now our valuable friend, for the second time introduced his Bill to make rat and mouse destruction a permanent obligation, he found it possible to withdraw the measure after its second reading because the Government had formulated a comprehensive Bill, which they pledged themselves to place on the Statute book. From this it will be gathered that the Vermin Repression Society cannot and *will not* allow the Act to become a dead letter, and we confidently hope that our Government will emulate the example of other Governments, especially that of Denmark, and make the Society a grant in aid, to help us over our present difficult time, when private and personal effort, both financial and service-giving, is so sorely tried. We have the powerful advantage of a Business Houses Panel (Mr. Henry Atwell, of Messrs. J. Lyons, Ltd., and Mr. E. T. Brook, of the Electric Railways, Chairman and Vice-Chairman respectively), which reinforces our Scientific and Research Section with a dynamic energy that has enabled the Society, with its limited finance, to be a friend and adviser to all and sundry, and to rat advertise and poster the land from one end to the other with its warnings. The Society is expanding, and, like the rat menace, it is now international; its work to-day is bringing home to the man in the street the necessity for pulling *his* weight. Rats must be destroyed; we cannot afford to risk another Plague of London, nor can we afford to risk one solitary plague-striken rat's escape to a badly infested port where it might very well infect our home contingent, and cause that port to be closed, at a loss of anything in the region of £2,000,000 per day if the port be one of importance. The question of the employment of virus is one that the Society has referred to the League of Nations, and in the meantime the Society would like a Royal Commission to be constituted to deal with this important matter. To those to whom the word Economy has become a fetish, let me say "We certainly cannot afford to keep such an expensive animal as the rat, and his ruthless extermination is the exemplification of true economy."

Mr. Moore's plea for energetic action against the rat was strongly supported, and it was agreed that money expended by Local Authorities and others in rat repression was true economy.

THE ROYAL SANITARY INSTITUTE.

FOUNDED 1876.

BOURNEMOUTH.

Place of Meeting for the Congress and Exhibition of the Institute, 1922.

SINCE Bournemouth first adopted its proud motto of "*Pulchritudo et Salubritas*," no more striking description of its general characteristics has been given than Sir James Crichton-Browne's felicitous title, "The Temple of Hygeia." Beautiful and health-giving, the Town has few equals amongst English Health Resorts, and challenges favourable comparison with Montpellier and other Continental Resorts.

Situated in the centre of a fine sickle-shaped bay at the extreme south-western corner of Hampshire, facing full south, and sheltered on the east by the Isle of Wight, and on the west by the "Isle" of Purbeck, Bournemouth occupies an exceptionally favourable position; whilst those pioneers who planned the town in its early days not only preserved but enhanced its natural beauty and attractiveness. Here, the oft-repeated mistake of creating an *urbs in rure* has been carefully avoided. It is "a seaside town

THE SQUARE.

in a pine forest." Its sea front is not disfigured by rows of shops or terraces of houses. Its miles of yellow sands are backed by high cliffs, broken at intervals by picturesque chines ; and its numerous hotels, boarding houses and private residences lie half hidden amongst pine trees and well kept gardens.

Bournemouth has many claims to be regarded as a real garden city. It has 1½ miles of pleasure gardens extending inland from the sea, on either side of the tiny Bourne stream, and gay with an endless variety of flower, shrub and tree. But in addition to these there are numerous other parks and pleasure grounds—some 700 acres in all—as well as many miles of cliff walks, beach promenades and pine-shaded footpaths.

The mildness of its climate in winter, its quick-drying subsoil of sand and gravel, and the beneficial effects of the pine trees, especially for all kinds of respiratory disorders, first brought it fame as a health resort.

It is to-day equally famous as a summer holiday centre, offering unrivalled attractions for sea or land excursions, as well as for outdoor games and amusements of all kinds.

The following are a few significant Census figures. In 1851, the population was only 695. Twenty years later it had grown to 5,896, and in 1881, to 16,859. In 1901, it had again increased to 59,762, and at the recent Census of 1921, to no less than 91,770.

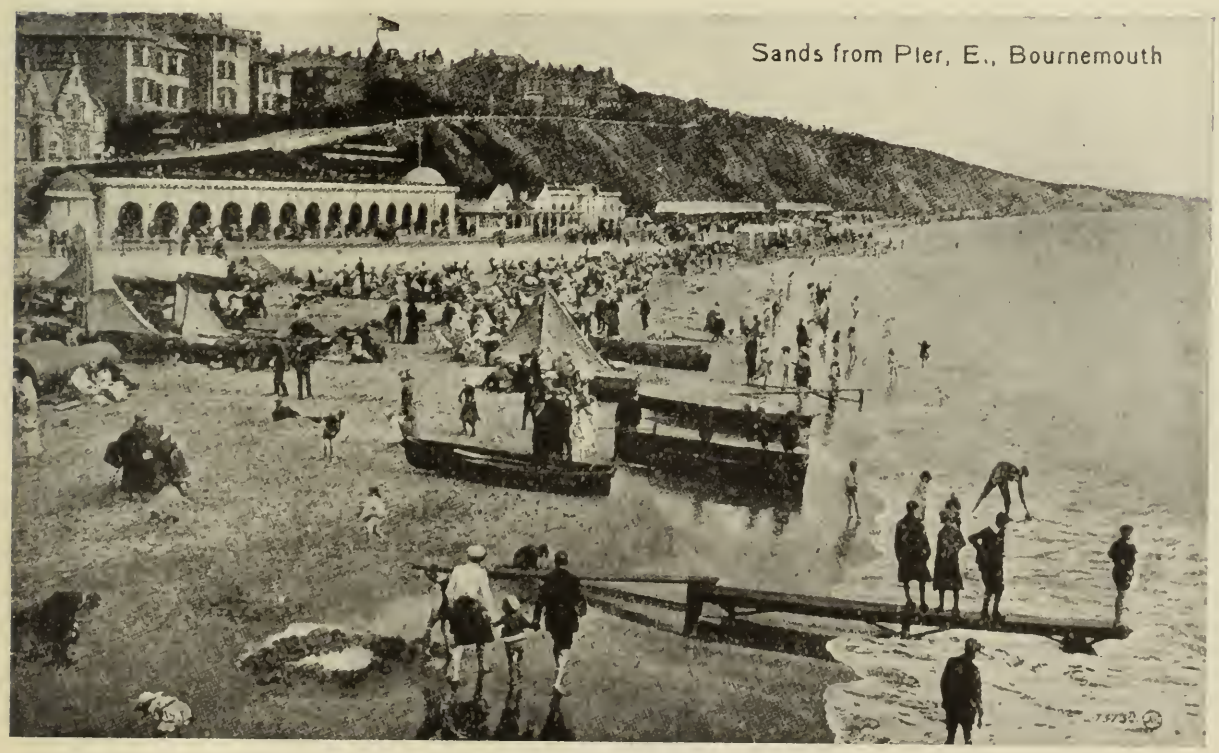
As the Town grew its suburbs spread inland, and were spaced out over a wide area, to a large extent on garden city lines. There are no factories or industrial quarters, and the entire absence of slums is a marked characteristic of this beautiful modern Town, which has sprung up with an almost American-like rapidity, on a virgin site.

Bournemouth owes a good deal of its reputation as a health resort to its pine trees, which, even allowing for the ravages of the builder, are estimated to number well over two millions. A well known authority, Dr. Horace Dobell, said " It has long been recognised that the atmosphere of pine forests has an invigorating and beneficial effect upon people with weak constitutions and suffering from pulmonary disorders," and he points out that the " pine needle " or leaf of the pine, is but a thin woody fibre which falls during the hotter portion of the year and forms a dry porous bed. It does not retain moisture like the slowly decaying leaves of the deciduous tree. The pine gives off a resinous perfume which is beneficial in all chest complaints. The pine tree not only abounds in Talbot Woods and Branksome Woods, but lines several of the roads on the East and West Cliffs and is found in many public and private gardens. Many have, of course, had to be cut down as building progressed, but the Corporation have been careful to plant young trees, wherever practicable, to make good

the deficiency. The chief kinds are the Scotch Fir, with bright golden bark and characteristic scent; the tall Pinaster, with large cones, and the dark Austrian pine, but there are other varieties such as the Weymouth (or White American) pine, and the Oregon pitch pine.

It has, too, a just claim to the possession of an equable climate, comparatively cool in summer and warm in winter. This is amply proved by the meteorological statistics of the past 20 years, which show a mean temperature of 51·4 for the year, or 46·3 for the six winter months, an average of over 1,747 hours of bright sunshine, and a rainfall of only 31 inches.

The old prejudice against Bournemouth that because it is relatively warm in winter it must therefore be hot and oppressive in summer still lingers, but it is rapidly being dispelled by the experience of those who find that on the cliffs and stealing through the chines there are always refreshing sea breezes, mingling with the scent of the pines. The fact is that in Bournemouth, owing to the diversity of aspects, and the numerous hills and valleys on which the town is built, there is not one climate but many, and even on the hottest day in summer, coolness and shade may be found in abundance.



SANDS FROM PIER.

Owing to the porous nature of the subsoil of sand and gravel, rain, when it comes, dries up with unusual rapidity, and the absence of mud is remarkable. There are no tidal muds, low-lying swamps or retentive soils. Fogs rarely occur, and take the form of light sea mists which quickly disappear.

Bournemouth possesses special facilities not only as a health, but as a holiday resort; though it is only in more recent years that its splendid facilities as a place at which to spend an enjoyable summer holiday have been fully developed. The construction of the Undercliff Drive and Promenade, with cliff lifts giving easy access to the beach, has led to big developments on the sea front.

The Sands stretch from Hengistbury Head on the east to the Sandbanks at the entrance to Poole Harbour on the west, about six miles of beach being within the borough boundary, most of which is available at all states of the tide. The sands are clean and, with few exceptions, free from shingle. Their gentle slope to the sea renders bathing safe and pleasant, and provides an excellent playground for children.

A feature which impresses the visitor from the north is the curious phenomenon of double tides. A second or half-tide, occurs about three-and-a-half hours after the first, and it is difficult, without close observation, to decide whether it is high or low water. This, of course, gives the advantage of bathing in comfort and safety at all states of the tide.

Municipal enterprise is shown in the provision of two first rate Golf Courses: at Meyrick Park, near the centre of the Town, and at Queen's Park, a short tram ride from the Square, the Meyrick Park Course being the first Municipal Golf Links in England.

Bournemouth was also the first to possess a permanent Municipal Orchestra, which plays daily at the Winter Gardens under the able leadership of Mr. Dan Godfrey, Hon. R.A.M., and has attained a well-earned reputation for the performance of the highest class music, more particularly that of modern English composers. Its symphony concerts are known and appreciated throughout the music world. Most of the greatest singers, musicians and lecturers have, from time to time, appeared at the Winter Gardens.

Municipal enterprise is also shown in the provision of a very fine Pier, a second Pier at Boscombe, and an excellent service of electric trams connecting various outlying parts of the borough and the neighbouring old fashioned and historical towns of Poole on the one side, and Christchurch on the other.

The Municipality also provides for Cricket, Hockey, Tennis, Bowls and Croquet, and has built excellent beach bungalows facing the Undercliff Drive and Promenades—a most popular feature.

The supplies of gas, water and electricity are in the hands of private

Companies, but few towns are better served, the water supply, in particular, being abundant and pure, derived in part from gravel strata near the river Stour, at Longham, and in part from deep wells in the chalk near Wimborne, Dorset. The water from the latter source is artificially softened down to about 10 degrees of hardness. The water is first pumped to reservoirs at Alderney, where it is filtered and descends by gravitation to the Town.

The Municipality has always striven to maintain a very high standard of sanitation. The drainage goes through long outfalls into the deep sea, and the engineering difficulties of securing a satisfactory system were greatly lessened by the general configuration of the sandy uplands and little valleys sloping gradually to the sea, which provide a natural drainage. Sewage farms and pumping have therefore been dispensed with. The Town refuse is consumed in a 12 cell destructor of the high temperature type, and there is an efficient system of refuse removal. No town can boast of cleaner streets or a more general appearance of tidiness.

Before the war new houses were being built at the rate of 300 to 500 per annum.

Upper Gardens from the Square.

During the war there was a cessation of building, and partly to meet the need for small houses, the Corporation undertook a Housing Scheme under which 162 houses of a model type have been erected on excellent sites on the South Hill Estate, Winton, and the Carbery Estate, at Southbourne. These are let to ex-service men with large families at moderate rentals.

The care devoted to the maintenance of public health is reflected in the Town's vital statistics. Here are a few which may be of interest.

Summary of Statistics and General Information Relating to the County Borough of Bournemouth.

1. Area of the County Borough, 6,643 acres.
2. Geological information: Bagshot Sands Series; Subsoil—Silicious Sand.
3. Population (1921 Census), 91,770. Density of population, Number of persons per acre, 12·93; number of persons per house, 4·9.
4. Birth rate, 13·5 per 1,000; average for last 3 years.
5. Infantile mortality, 63·2 per 1,000 births; average for last 3 years.
6. Death rate, 12·9 per 1,000, average for last three years.
7. Phthisis Death Rate, 1·2 per 1,000, average for last three years.
8. Influenza Death Rate, 1·3 per 1,000, average for last three years.
9. Number of cases of Infectious Disease per 1,000 of the population:

Scarlet Fever	1·03
Enteric Fever	·04
Diphtheria	0·75
Variola	·0
Erysipelas...	0·27
Cerebro-Spinal Meningitis	0·2

10. Number of Inhabited houses (1911), 15,000; (1920), 17,250.
11. Rateable Value (1920), £806,298.
12. Rates.—Poor and General District Rates (1921), 10s. 10d. in the £.
13. Water Supply.—Constant service from deep artesian wells at Wimborne, situate about 11 miles from Bournemouth.
14. Sewage Disposal by water carriage, outfalls into the sea at Double Dykes, Fisherman's Walk, Boscombe Chine, Bournemouth and Alum Chine. There are separate storm-water outfalls also discharging into the sea.

15. Price of Gas. 1s. per therm, equivalent to 4s. 6d. per 1,000 cubic feet.
    Price of Water. $4\frac{3}{4}$ per cent. under £20 rental, 5 per cent. over £20 rental, plus $33\frac{1}{3}$ per cent.
    Price of Electric current. 8d. per unit for lighting; $3\frac{1}{2}$d. per unit, plus $13\frac{1}{3}$ per cent. for power; and $2\frac{3}{4}$d., heating and cooking.
16. Rainfall. 31·16 inches, average for 20 years.
17. Bright Sunshine. 1,747 hours 20 minutes, average for 20 years.
18. Mean temperature for the year, 51·4; average for 20 years.
19. Mean temperature for 6 winter months, 46·3; average for 20 years.

Reviewing the vital statistics, there is evidence that Bournemouth can claim to be in the front rank of sanitary supremacy among the greater towns of England; and also can present as clean a bill of health as even the smaller towns.

[*Photo by* J. Reade, Parkstone.]

The Municipal College.
Where most of the Congress Meetings will be held.)

The prosperity of the town largely depends on its "Health," and all classes of the community are as zealous for the production and maintenance of healthy conditions as are the Municipal Authorities. There is, therefore, little or no obstruction or evasion in connection with the carrying out of modern sanitary reforms and improvements for the betterment of the town, and the inhabitants are alive to the importance of enhancing the town's reputation as a flourishing health resort.

Essentially a modern town—though surrounded by places of great historic interest, such as Christchurch, with its Priory; Wimborne with its Minster; Salisbury with its Cathedral; Poole, Wareham and Corfe Castle—Bournemouth has comparatively few public buildings which are specially noteworthy. The Town Hall was formerly the Hotel Mont Dore, a famous Hydro whose foundation stone was laid by King Oscar of Sweden and Norway, on the 25th of May, 1881. Conspicuous at the Lansdowne is the Municipal College, where the meetings of the Congress will be held, a very fine modern building with a tall clock tower. The Law Courts were opened in January, 1914, but they are in a side street where they do not show to advantage. There is a well-equipped Central Public Library adjoining the Municipal College, and Branch Libraries at Boscombe, Westbourne, Winton and Springbourne, were built by the aid of funds given by the late Andrew Carnegie.

Few, if any, health resorts offer better educational facilities. Not only are there numerous first-class boarding schools for boys and girls, but the Municipal College has a School of Art, with well-equipped studios, and a School of Science with up-to-date laboratories. There are also excellent Municipal Secondary Schools for both sexes.

The extensive Music Library presented by the late J. M. B. Camm is housed at the Central Public Library. Bournemouth is rapidly attaining a unique position as a musical centre.

The Russell-Cotes Art Gallery and Museum, at East Cliff Hall, was generously presented to the town by the late Sir Merton and Lady Russell-Cotes, and contains a splendid collection of pictures, sculptures by modern artists, bric-à-brac, and curios from Japan, Russia and other parts.

As a centre for excursions by land and sea Bournemouth possesses special advantages.

The motor coach drives in the neighbourhood are deservedly popular. Chief amongst them are the following. The New Forest, viâ Christchurch (Norman-Saxon Priory), Hinton Admiral (seat of Sir George Meyrick), Lyndhurst, Rufus Stone, Ringwood, and some of the most beautiful bits of typical forest scenery.

Corfe Castle, viâ the ancient Roman town of Wareham. The Castle ruins are perched on a monticle in a gap between two ranges of hills in the "Isle of Purbeck," and are the subject of interesting stories and legends. The route skirts Poole Harbour, and may be extended to Swanage.

Wimborne, with its Norman Minster containing a chained library and quaint astronomical clock (early fourteenth century), and Canford Model Village adjoining Canford Manor (famous for its Nineveh Court).

Salisbury and Stonehenge, distant about 31 and 40 miles, respectively.

Dorchester and Weymouth, both old world Dorset towns, the "Casterbridge" and "Budmouth" of the Wessex novels of Thomas Hardy.

In the summer there are steamboat trips across the Bay to Swanage, and further along the picturesque Dorset coast to Lulworth and Weymouth. Eastward there are trips to the Isle of Wight, Southampton and Southsea, and there are also occasional longer excursions to Torquay, the Channel Islands and Cherbourg.

Bournemouth Bay is well sheltered, and boating is safe and pleasant. Experienced boatmen are licensed by the Corporation. Sailing and rowing boats may be hired at moderate charges.

Motor launches may also be hired.

For those who prefer river boating, good boats and pretty scenery will be found on the River Stour, the best starting points being at Tuckton and Iford Bridges.

In the matter of amusements and shopping facilities Bournemouth leaves little to be desired.

As a centre for the photographer, the geologist and the lover of natural history, Bournemouth offers special advantages.

The Bournemouth Natural Science Society is a flourishing institution with a large membership and a home of its own in Christchurch Road.

THE THIRTY-THIRD CONGRESS OF THE INSTITUTE WILL BE HELD IN BOURNEMOUTH, FROM JULY 24TH TO 29TH, 1922.

PRESIDENT OF THE CONGRESS.

MAJOR-GENERAL THE RIGHT HON. J. E. B. SEELY, C.B., C.M.G., P.C., D.S.O., M.P. (LORD LIEUTENANT OF HAMPSHIRE).

Chairman of Local Committee.

THE RIGHT WORSHIPFUL THE MAYOR OF BOURNEMOUTH. (Alderman Chas. H. Cartwright).

Hon. Local Treasurer.

C. R. HALEY (Borough Treasurer).

Hon. Local Secretaries.

HERBERT ASHLING, Town Clerk.
A. D. EDWARDS, M.B., B.Sc., D.P.H., Medical Officer of Health.
W. G. COOPER, F.I.S.E., Chief Sanitary Inspector.

Popular Lecture.—By Professor LEONARD HILL, M.B., F.R.S., on "The Value of Clean Fresh Air." The Chair will be taken by

The Right Hon. THE EARL OF MALMESBURY, D.L., J.P.

The Right Hon. The Lord Mayor of London, SIR JOHN JAMES BADDELEY, KT., and the Lady Mayoress will attend the Congress and take part in the meetings.

Officers of Sections and Conferences.

A.—Sanitary Science.

President: SIR ARTHUR NEWSHOLME, K.C.B., M.D., F.R.C.P.

Recording Secretary: CHARLES PORTER, M.D., B.Sc., M.O.H., St. Marylebone, N.W. 1.

Local Secretaries: E. W. D. HARDY, M.R.C.S., L.R.C.P., 8, Durley Road, Bournemouth; R. A. LYSTER, M.D., B.Sc., Medical Officer of Health, Hampshire C.C., Winchester.

B.—Engineering and Architecture.

President: SIR HENRY TANNER, C.B., I.S.O., F.R.I.B.A.

Recording Secretary: A. SAXON SNELL, F.R.I.B.A., 9, Bentinck Street, Manchester Square, W. 1.

Local Secretaries: F. P. DOLAMORE, F.S.I., Borough Engineer and Surveyor, Bournemouth; SAMUEL J. NEWMAN, F.R.I. B.A., Wolvesey, North Road, Parkstone, Dorset.

C.—Maternity and Child Welfare, including School Hygiene.

President: Sir George Newman, K.C.B., D.C.L., M.D., F.R.C.P.

Recording Secretary: G. F. Buchan, M.D., Ch.B., D.P.H., M.O.H., Willesden, N.W. 6.

Local Secretaries: W. V. T. Styles, M.R.C.S., Assistant School Medical Officer and Assistant Medical Officer of Health, Bournemouth; Miss C. Brock, Health Visitor, Town Hall, Bournemouth.

D.—Personal and Domestic Hygiene.

President: Mrs. Muriel Lefroy, formerly Scholar of Newnham College.

Recording Secretary: Mrs. Alice E. Kitching, Fernworthy, Brunstead Road, Bournemouth.

Local Secretaries: Miss D. Woods, Health Visitor, Town Hall, Bournemouth; J. R. White, M.A., Whitecot, Linwood Road, Bournemouth.

E.—Industrial Hygiene.

President: H. Gordon Selfridge.

Recording Secretary: Joseph Cates, M.D., B.S., D.P.H., M.O.H. Surrey C.C., 16, Adelaide Road, Surbiton.

Local Secretaries: W. H. Mackenzie, Borough Engineer's Department, Town Hall, Bournemouth; H. R. Homewood, P.A.S.I., District Surveyor, Morley Road, Bournemouth.

I.—Representatives of Sanitary Authorities.

President: Alderman J. E. Beale, J.P., Chairman of the Health Committee, Bournemouth.

Recording Secretary: A. F. Kidson, Town Clerk, Folkestone.

Local Secretaries: H. Ashling, Town Clerk, Bournemouth; C. Lisby, Town Clerk, Poole.

II.—Medical Officers of Health.

President: W. J. Howarth, C.B.E., M.D., Ch.B., D.P.H.

Recording Secretary: T. W. Naylor Barlow, O.B.E., M.R.C.S., L.R.C.P., D.P.H., M.O.H., Public Health Office, Wallasey.

Local Secretaries: A. D. Edwards, M.B., B.Sc., D.P.H., Medical Officer of Health and School Medical Officer, Bournemouth; R. J. Maule Horne, M.A., M.B., B.Sc., D.P.H., Medical Officer of Health, Poole.

III.—Engineers and Surveyors.

President : NORMAN SCORGIE, M.Inst.C.E., Borough Engineer, Hackney.

Recording Secretary : EDWARD WILLIS, Assoc.M.Inst.C.E., F.S.I., Town Hall, Chiswick, W

Local Secretaries : E. W. INGAMELLS, Deputy Borough Engineer, Town Hall, Bournemouth ; H. J. FARMER, Borough Surveyor, Christchurch.

IV.—Veterinary Inspectors.

President : W. WOODS, F.R.C.V.S.

Recording Secretary : J. R. HAYHURST, M.R.C.V.S., D.V.S.M., Metropolitan Cattle Market, Islington, N.

Local Secretaries : W. STEWART WOOD, M.R.C.V.S., Walton Lodge, Parkstone ; E. S. MARTIN, M.R.C.V.S., Magnolia House, Christchurch.

V.—Sanitary Inspectors.

President : W. G. COOPER, Chief Sanitary Inspector, Bournemouth.

Recording Secretary : J. H. CLARKE, Chief Sanitary Inspector, Town Hall, Chiswick.

Local Secretaries : A. J. PHILLIPS, District Sanitary Inspector, District Office, Maxwell Road, Bournemouth ; W. D. CARTER, Food Inspector, Town Hall, Bournemouth.

VI.—Health Visitors.

President : PROF. A. BOSTOCK HILL, M.Sc., M.D., D.P.H.

Recording Secretary : MISS L. M. O'KELL, Public Health Department, Paddington, W.

Local Secretaries : MISS F. M. LAW, MRS. K. BLANCHARD } Health Visitors, Town Hall, Bournemouth.

Members proposing to submit Papers for reading in Sections or Conferences, are asked to send in the titles of their Papers at once, and the Manuscripts for consideration of the Committee not later than June 19th.

The HEALTH EXHIBITION will be held in the Hants Drill Hall, from July 24th to 29th, 1922.

MEETINGS HELD.

Bournemouth Congress.

The Public Meeting to inaugurate the local arrangements for the Congress was held at the Town Hall, Bournemouth, on January 12th. The Right Worshipful the Mayor, Alderman Chas. N. Cartwright, presided, and the Institute was represented by Prof. H. R. Kenwood, C.M.G., M.B., D.P.H., Chairman of Council, Mr. H. D. Searles Wood, F.R.I.B.A., and Prof. A. Bostock Hill, M.Sc., M.D. A Local General Committee was appointed.

Sessional Meetings.

London.—A meeting was held at the Institute on Tuesday, February 14th, when a discussion on "The Administrative Measures necessary in regard to the Slaughtering of Animals and the Storage and Transport of Meat in connection with the Report issued by the Ministry of Health" was opened by W. M. Willoughby, M.D., D.P.H., M.O.H., Port of London; J. Edwards, Member of the Departmental Committee; and J. Dixon, M.R.C.V.S., Veterinary Inspector, Leeds. The chair was taken by Sir Horace Monro, K.C.B.

Norwich.—The meeting was held in the Guildhall on Friday, February 17th, when discussions on "The Carrier Problem in Disease" and "The Norwich Flood, 1912," were opened by S. L. Leggat, O.B.E., M.B., D.P.H., Assistant Medical Officer of Health, and Henry Wood, A.M.Inst.C.E., Deputy City Engineer. The members were welcomed by the Right Hon. the Lord Mayor, and the chair was taken by Louis C. Parkes, M.D., D.P.H., Vice-President of the Institute.

On Saturday, February 18th, visits were made to the Housing Estate new road over river and railway at Heigham, Waterworks, and Observation Pavilion Isolation Hospital.

Leeds.—February 24th and 25th.

Examinations.

Since the last issue the following examinations have been reported —

Cape Town, Nov. 25th and 26th.
Johannesburg, Nov. 25th and 26th.
Pietermaritzburg, Nov. 25th and 26th.
Singapore, Dec. 8th, 9th and 10th.
Hong Kong, Dec. 14th and 15th.
Hereford, Jan. 20th and 21st.
Plymouth, Feb. 3rd and 4th.

For Inspectors of Meat and other Foods.

Cape Town, Dec. 9th and 10th.
Johannesburg, Dec. 9th and 10th.

At these examinations 137 candidates presented themselves, and the following were awarded certificates :—

Sanitary Science as applied to Buildings and Public Works.

Impeys, Lennox Hamilton, *Pretoria.* Morris, Wilfred, *Bude.*
Noad, Herbert James, *Bath.*

Smoke Inspectors.

BURR, CECIL JOHN, *Woolwich.*

Maternity and Child Welfare Workers.

EDMAN, GWENDOLEN LOUISE, *Ledbury.*

Women Health Visitors and School Nurses.

BAZELL, CLEMENTINA MAY, *Clent.*
BERDINNER, ELSIE, *Leicester.*
FLAMANK, ALYS, *Grampound Road.*
FREEMAN, AGNES MARTHA, *Leicester.*
JAMES, JANE GATLEY DOROTHY H. *Bideford.*
KILNER, MARGARET, *Dawlish.*

School Hygiene, including Elementary Physiology.

BRASH, MARY, *Hereford.*
DAVIES, JANET HOPKIN, *Pontypridd.*

Inspectors of Nuisances.

BARD, ERNEST EMILE, *Johannesburg.*
BARTLETT, PERCY HOWARD, *Lostwithiel.*
BIRKBY, CATHERINE, *Keernu S.*
CAMERON, ALLAN SOMERVILLE, *Johannesburg.*
CURLE, WESLEY WILLIAMS MORRIS, *Caledon.*
ECCLESHALL, SIDNEY, *Hong Kong.*
GROOM, GEORGE, *Johannesburg.*
GIPSON, GEORGE, *Hong Kong.*
HORN, ELLEN FRANCES, *Kimberley.*
HUMPHRIES, ROBERT PERCY, *Cape Town.*
IDE, EDITH, *Johannesburg.*
JOLLY, ALLAN RICHARD, *Cape Town.*
JONES, HERBERT VICTOR, *Plymouth.*
JOHNSON, ALBERT WILFORD, *Ibstock.*
LEACH, INON JOHN, *Crediton.*
LEWIN, ETHEL LOUISE, *New Somerset.*
LEWIN, ERNEST THOMAS, *Rosebank.*
MARTINDALE, KATE, *Red Hill.*
MILLINGTON, HENRY JAMES, *Hong Kong.*
MOFFITT, FREDERICK JOHN, *Johannesburg.*
MOORE, WALTER ALEXANDER, *Catford.*
OVENS, GEORGE LEO, *Hereford.*
OXLAND, ARTHUR GEORGE, *Plymouth.*
PARTRIDGE, GEORGE ERNEST, *Pretoria.*
RAE, BERYL, *Cape Town.*
REID, JAMES, *Hong Kong.*
RILEY, CYRIL ERNEST, *Germiston.*
ROBINSON, ROBERT W., *Wynberg.*
ROYLANCE, GEORGE EDWARD, *Hong Kong.*
SCHAAP, MAURICE, *Johannesburg.*
SEELIGSOHN, LEOPOLD D'ARCIER, *Johannesburg.*
STEER, FRANK ALBERT, *Duloe.*
STENLAKE, CHARLES MORLEY, *Tavistock.*
SIMPKINS, REGINALD PERCY, *Johannesburg.*
STRANGE, HARRY EDWARD, *Hong Kong.*
WATSON, JOHN, *Hong Kong.*
WILD, SYBIL HANNAH, *Pretoria.*

Inspectors of Meat and other Foods.

CLARE, HARRY WILLIAM, *Springs.*
RUSSELL, SQUIRE GEORGE, *Johannesburg.*

Special South African Meat Inspectors' Certificate.

COETZEE, JACOB LODEWIKUS. *New Brixton.*
WHALE, FREDERICK GEORGE, *Woodstock.*

Sanitary Inspectors in Malaya.

ANGUS, WILLIAM REYNOLD, *Singapore.*
DE VILLIERS, JOHN SCHINDELER, *Singapore.*
STANLEY, RALPH ERNEST, *Singapore.*

FORTHCOMING MEETINGS.

London.—Tuesday, March 14th, at 5.30 p.m. Discussion on "Central Heating in relation to Domestic and other Dwellings," to be opened by A. H. Barker, B.A., B.Sc.

The Chair will be taken by Sir Henry Tanner, C.B., I.S.O., F.R.I.B.A.

Blackburn.—Friday, March 17th, at 6 p.m. Discussions on "The Sanitation of Places of Entertainment," to be opened by W. Allen Daley, M.D., D.P.H., Medical Officer of Health, Blackburn; and "Conversion of Pail Closets," by A. T. Gooseman, M.Inst.C.E., Borough Engineer.

The members will be received and entertained to tea and to light refreshments after the meeting by His Worship the Mayor, and the chair will be taken by Prof. H. R. Kenwood, C.M.G., M.B., D.P.H., Chairman of Council. Hon. Local Secretary, Dr. W. Allen Daley, M.O.H.

On Saturday, March 18th, visits will be made to Messrs. Whitaker's Sanitary Ware Works, the Corporation Sewage Works, Hospital, and Refuse Destructor, to newly erected houses and houses in course of erection, Picturedromes, the new Public Halls, including the Ozonair system of ventilation, Tuberculosis Dispensary, Maternity Hospital, conversions in progress, and to a Cotton Mill.

London.—Tuesday, April 11th, at 5.30 p.m. Discussion on "Economy in Sanitary Appliances and Methods of Drainage," to be opened by Sir Henry Tanner, C.B., I.S.O., F.R.I.B.A..

The chair will be taken by Prof. H. R. Kenwood, C.M.G., M.B., F.R.S.E.

Ordinary General Meeting.

The Ordinary General Meeting will be held at the Institute on Wednesday, April 26th, at 4.30 p.m.

Lecture to the Institute.

Will be delivered on Wednesday, April 26th, at 5.30 p.m., by Andrew Balfour, C.B., C.M.G., M.D., on "The Outlook in Tropical Hygiene."

Examinations.

In Sanitary Science as applied to Buildings and Public Works, for Inspectors of Nuisances, Maternity and Child Welfare Workers, Women Health Visitors and School Nurses, and School Hygiene, including Elementary Physiology, will be held at :—

Norwich, March 3rd and 4th.
Portsmouth, March 17th and 18th.
Edinburgh, March 24th and 25th.
Bristol, March 31st and April 1st.
Sheffield, April 7th and 8th.
London, April 21st and 22nd.
Belfast, May 5th and 6th.
Manchester, May 12th and 13th.
Dunedin, Christchurch and Auckland, N.Z., April 1922.
Trinidad, B.W.I., July, 1922.
Melbourne, Victoria, March and November, 1922.

For Inspectors of Meat and other Foods.
London, April 28th and 29th.

HENRY SAXON SNELL PRIZE.

THE Henry Saxon Snell Prize was founded to encourage improvements in the construction or adaptation of sanitary appliances, and is to be awarded by the Council of The Royal Sanitary Institute at intervals of three years, the funds being provided by the legacy left by the late Henry Saxon Snell (Fellow of the Institute).

The Prize in the year 1922 will consist of Fifty Guineas and the Medal of the Institute, and is offered for an Essay on " Improvements in the Sanitary Appliances and Fittings for new Housing Schemes, having regard to Efficiency and Economy."

General Conditions.

1. The Essay to consist of not more than 5,000 words, to be type-written on foolscap, one side only, and to be illustrated by drawings or sketches.

2. Two Competitors may combine in sending in an Essay and Drawings.

3. Essays must be delivered on or before August 31st, 1922, addressed to the Secretary of The Royal Sanitary Institute, 90, Buckingham Palace Road, London, S.W. 1, and the following points must be observed :—

(*a*) The Essays to be submitted without the name of the competitor.

(*b*) The Essays to bear a motto, legibly marked on the right hand lower angle of the first sheet.

(*c*) The Essay to be enclosed in an envelope, bearing the words " Henry Saxon Snell Prize," and the Competitor's motto at the right hand lower angle, and to be directed to the Secretary of The Royal Sanitary Institute.

(*d*) The Essays to be accompanied by a letter containing the Competitor's name and address, which is to be enclosed in a separate envelope, sealed with a blank seal, and having on the outside " The Henry Saxon Snell Prize," and the same motto as that attached to the Essay submitted.

4. Should none of the Essays be considered of sufficient merit or importance to deserve the Prize offered, the Council reserve the right of withholding the award.

5. In the event of two Essays being of equal merit, the Prize may be divided.

6. The Essay or Essays to which the Prize is awarded are to become the property of the Institute.

Should the Council decide to publish the Essay or Essays to which the Prize is awarded, notice will be given to the Competitor or Competitors in order that patent rights may be secured, if desired, for any of the appliances mentioned in the Essay or Essays.

7. The carriage of the Essays to and from the Office of the Institute, and all expenses incidental thereto, must be paid by the Competitor. Unsuccessful Essays will be returned on application, on the production of a formal demand within a period to be specified after the close of the Competition.

8. Due care will be taken of all Essays, but the Institute will not be responsible for any loss of, or damage to them while they remain in its keeping.

Calendar for March and April.

As far as at present arranged.

MARCH.

1 W. Inspection and Demonstration in the District of Chiswick, at 2.30 p.m. Conducted by J. H. Clarke, Chief Sanitary Inspector, Chiswick.

1 W. Lecture to Sanitary Officers, at 6 p.m. Water : Composition, Pollution and Purification, by Joseph Priestley, M.D., D.P.H.

1 W. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Health Talks and Home Nursing, by Mrs. Lomax-Earp, Matron, Health Institute, Kilburn.

3 F. Lecture to Sanitary Officers and Health Visitors and Child Welfare Workers, at 6 p.m. Sanitary Appliances, by W. C. Tyndale, O.B.E., M.INST.C.E.

3 F.
4 S. } Examinations, Norwich.

4 S. Demonstration—Meat Inspectors, Metropolitan Cattle Market, at 12.30 p.m.

4 S. Inspection and Demonstration at the Lambeth Disinfecting Station, at 2.30 p.m. Conducted by Joseph Priestley, M.D., D.P.H.

6 M. Lecture to Sanitary Officers and Health Visitors and Child Welfare Workers, at 6 p.m. House Drainage, by W. C. Tyndale, O.B.E., M.INST.C.E.

8. W. Lecture to Sanitary Officers, at 6 p.m. Details of Plumbers' Work, by Walter Scott.

8 W. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Water Supply : Fittings and Ventilation in the Home, by J. H. Clarke, Chief Sanitary Inspector, Chiswick.

10 F. Lecture to Sanitary Officers, at 6 p.m. Calculations, Measurements and Plans and Sections, by W. C. Tyndale, O.B.E., M.INST.C.E.

10 F. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Organisation and Management of Infant Welfare Centres and Clinics, by Mrs. Flora Shepherd, M.B., CH.B., Assistant M.O.H., Hornsey.

10 F. Lecture to Meat Inspectors, at 6 p.m., by J. R. Hayhurst, M.R.C.V.S., D.V.S.M.

11 S. Inspection and Demonstration at Express Dairy Co.'s Farm, Finchley, N., at 2.30 p.m.

11 S. Demonstration—Meat Inspectors, Metropolitan Cattle Market, Islington N., at 12.30 p.m. Conducted by J. R. Hayhurst, M.R.C.V.S., D.V.S.M.

14 Tu. **Sessional Meeting, London,** at the Institute, at 5.30 p.m. Discussion on " Central Heating in relation to Domestic and other Dwellings," to be opened by A. H. Barker, B.A., B.SC.

14 Tu. Lecture to Sanitary Officers and to Health Visitors and Child Welfare Workers, at 6 p.m. Ventilation and Warming, by Edward Willis, Esq., A.M.INST.C.E., F.S.I., Engineer and Surveyor, Chiswick.

15 W. Inspection and Demonstration in the District of Islington, at 2.30. Conducted by G. Clark Trotter, M.D., D.P.H., M.O.H., Islington.

16 Th. Lecture to Sanitary Officers, at 6 p.m. Building Materials, by Edward Willis, A.M.INST.C.E., F.S.I.

16 Th. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Official and Voluntary Agencies administering to Child Welfare : The Children Act by Mrs. Flora Shepherd, M.B., CH.B.

17 F. Lecture to Sanitary Officers, at 6 p.m. Building Sites, by Edward Willis, A.M.INST.C.E., F.S.I.

March.

17 F. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Prevention of Communicable Disease, by R. Veitch Clark, M.A., M.D., M.O.H., Croydon.

17 F. } **Sessional Meeting, Blackburn,** in the Public Hall, at 6 p.m. Discussion on
18 S. } "Sanitation of Places of Entertainment" and "Conversion of Pail Closets," to be opened by W. Allen Daley, M.D., D.P.H., Medical Officer of Health, and A. T. Gooseman, M.INST.C.E., Borough Engineer.

18 F. }
18 S. } Examinations, Portsmouth.

18 S. Demonstration—Meat Inspectors, Metropolitan Cattle Market, at 12.30 p.m.

18 S. Inspection and Demonstration at Schools and Public Buildings, Chiswick, at 2.30 p.m. Conducted by Edward Willis, A.M.INST.C.E., Engineer and Surveyor, Chiswick.

18 S. Demonstration to Health Visitors and Child Welfare Workers, in the Parkes Museum, at 3 p.m. Conducted by J. H. Clarke.

20 M. Introductory Lecture to Commissioned Officers, at 3.30 p.m., by Colonel C. H. Melville, C.M.G., M.B.

20 M. Lecture to Sanitary Officers, at 6 p.m. Sewerage, by A. J. Martin, M.INST.C.E.,

20 M. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Prevention of Communicable Disease, by R. Veitch Clark, M.A., M.D., B.SC., D.P.H.

21 Tu. Demonstration to Commissioned Officers, at Smithfield Market, at 11 a.m. Conducted by Lieut.-Colonel T. Dunlop Young, O.B.E., M.R.C.V.S., D.V.S.M.

21 Tu. Lecture to Commissioned Officers, at 4 p.m. Meat Inspection, by J. R. Hayhurst, M.R.C.V.S., D.V.S.M.

22 W. Lecture to Commissioned Officers, at 3.30 p.m. Canteen Supplies: Eggs, Butter, Cheese, Bacon, Lard, by C. L. T. Beeching, F.G.I.

22 W. Inspection and Demonstration in the District of Islington, at 2.30 p.m. Conducted by G. Clark Trotter, M.D., D.P.H., M.O.H. Department.

22 W. Lecture to Sanitary Officers, at 6 p.m. Sewage Disposal, by A. J. Martin, M.INST.C.E.

22 W. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Tuberculosis, by R. Veitch Clark, M.A., M.A. B.SC., D.P.H.

23 Th. Demonstration to Commissioned Officers at the Metropolitan Cattle Market, at 11 a.m. Conducted by J. R. Hayhurst, M.R.C.V.S., D.V.S.M.

23 Th. Lecture to Commissioned Officers, at 4 p.m. Meat Inspection by J. R. Hayhurst, M.R.C.V.S.

24 F. Lecture to Commissioned Officers, at 3.30 p.m. Canteen Supplies: Tea, Coffee, Cocoa, Chocolate, Sugar, by C. L. T. Beeching, F.G.I.

24 F Lecture to Sanitary Officers, at 6 p.m. Water Supply, Sources of Supply and Distribution, by William Matthews, M.INST.C.E.

24 F Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Venereal Diseases, by J. Letitia Fairfield, C.B.E., M.D., D.P.H.

24 F Lecture to Meat Inspectors, at 6 p.m., by J. R. Hayhurst, M.R.C.V.S., D.V.S.M.

24 F }
25 S } Examinations, Edinburgh.

25 S. Demonstration—Meat Inspectors, Metropolitan Cattle Market, at 12.30 p.m.

25 S. Inspection and Demonstration at the Kingston-on-Thames Sewage Disposal Works, at 2.30 p.m. Conducted by A. J. Martin, M.INST.C.E.

25 S. Demonstration to Health Visitors and Child Welfare Workers, in the Parkes Museum, at 3 p.m.. Conducted by J. H. Clarke, Chief S.I., Chiswick.

March.

27 M. Lecture to Commissioned Officers, at 3.30 p.m. Vegetables and Fruits, Jams, Condiments, etc., Prepared, Concentrated and Preserved Foods, by Colonel C. H. Melville, C.M.G., M.B.

27 M. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Ante-natal Hygiene (1), by Margaret G. Thackrah, B.A., M.D., M.R.C.P.

27 M. Demonstration in Fish Inspection for Meat Inspectors and Commissioned Officers, at the Institute, at 6 p.m. by Charles Hattersley, Chief Fish Inspector, Fishmongers' Company

28 Tu. Demonstration to Commissioned Officers at Smithfield Market, at 11 a.m. Conducted by Lieut.-Colonel T. Dunlop Young, O.B.E., M.R.C.V.S., D.V.S.M.

28 Tu. Lecture to Commissioned Officers, at 4 p.m. Meat Inspection, by J. R. Hayhurst, M.R.C.V.S., D.V.S.M.

29 W. Inspection and Demonstration at Maypole Margarine Works, Southall, at 2.30 p.m.

29 W. Lecture to Sanitary Officers at 6 p.m. Scavenging, Disposal of House Refuse, by W. R. Hicks, A.M.INST.C.E., Borough Engineer and Surveyor, Ealing.

29 W. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Ante-Natal Hygiene (2), by Margaret G. Thackrah, B.A., M.D., M.R.C.P.

30 Th. Lecture to Commissioned Officers, at 4 p.m. Meat Inspection, by J. R. Hayhurst, M.R.C.V.S., D.V.S.M.

30 Th. Lecture to Sanitary Officers, at 6 p.m. The Laws, By-Laws, and Regulations affecting the Sale of Food, by J. Spencer Low, C.B.E., M.B., B.SC., D.P.H.

31 F. Lecture to Commissioned Officers at 3.30 p.m. Canteen Supplies: Rice, Arrowroot, Flour, Biscuits, by C. L. T. Beeching, F.G.I.

31 F. Lecture to Sanitary Officers, at 6 p.m. The Appearance and Character of Fresh Meat and other Foods, by J. Spencer Low, C.B.E., M.B., B.SC., D.P.H.

31 F. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Care of Mother and Infant (1), by Margaret G. Thackrah, B.A., M.D., M.R.C.P.

31 F.
1 S. } Examinations, Bristol.

APRIL.

1 S. Demonstration—Meat Inspectors, Metropolitan Cattle Market, at 12.30 p.m.

1 S. Inspection and Demonstration at Water Works, at 2.30 p.m. Conducted by W. Mathews, M.INST.C.E.

1 S. Demonstration to Health Visitors and Child Welfare Workers, in the Parkes Museum, at 3 p.m. Conducted by J. H. Clarke.

3 M. Lecture to Commissioned Officers, at 3.30 p.m. Alcoholic Beverages: Beer, Whiskey, Brandy, etc., by Colonel C. H. Melville, C.M.G., M.B.

3 M. Lecture to Sanitary Officers at 6 p.m. Signs of Health and Disease in Animals destined for Food, by J. R. Hayhurst, M.R.C.V.S.

3 M. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Care of Mother and Infant (2), by Margaret G. Thackrah, B.A., M.D., M.R.C.P.

4 Tu. Demonstration to Commissioned Officers at Smithfield Market, at 11 a.m.

4 Tu. Lecture to Commissioned Officers, at 4 p.m. Meat Inspection, by J. R. Hayhurst, M.R.C.V.S.

5 W. Inspection and Demonstration at the Metropolitan Cattle Market, at 11 a.m. Conducted by J. R. Hayhurst, M.R.C.V.S., D.V.S.M.

5 W. Demonstration—Meat Inspectors, at Smithfield Market, at 11 a.m.

April.

5 W. Lecture to Sanitary Officers at 6 p.m. The Names and Situations of the Organs of the Body in Animals, by Lieut.-Colonel T. Dunlop Young, O.B.E., M.R.C.V.S., D.V.S.M.(Lond.).

5 W. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Infant Feeding, by G. Eric Pritchard, M.A., M.D., M.R.C.P.

6 Th. Demonstration to Commissioned Officers at the Metropolitan Cattle Market, 11 a.m.

6 Th. Lecture to Commissioned Officers, at 3.30 p.m. Canteen Supplies: Jams, Preserved Fruits, Condiments, Lime Juice, etc., by C. L. T. Beeching, F.G.I.

7 F. Visit to Factory for Commissioned Officers, conducted by C. L. T. Beeching.

7 F. Lecture to Sanitary Officers at 6 p.m. Practical Methods of Stalling and Slaughtering Animals, by Lieut.-Colonel T. Dunlop Young, O.B.E., M.R.C.V.S., D.V.S.M.

7 F. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Infant Feeding, by G. Eric Pritchard, M.A., M.D., M.R.C.P.

7 F.
8 S. } Examinations, Sheffield.

8 S. Demonstration—Meat Inspectors, at the Metropolitan Cattle Market, 12.30 p.m.

8 S. Inspection and Demonstration at the Sewage and Destructor Works, Ealing, at 2.15 p.m. Conducted by W. R. Hicks, A.M.INST.C.E., Borough Engineer and Surveyor, Ealing.

8 S. Demonstration to Health Visitors and Child Welfare Workers, in the Parkes Museum, at 3 p.m. Conducted by J. H. Clarke.

10 M. Visit to Factory for Commissioned Officers, conducted by C. L. T. Beeching.

10 M. Lecture to Sanitary Officers at 6 p.m. Diseased Meat, with a Demonstration Morbid Specimens collected from Meat Markets, by J. R. Hayhurst, M.R.C.V.S., D.V.S.M.

10 M. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Food and Clothing, by A. Beresford Kingsford, M.D., D.P.H.

11 Tu. Demonstration to Commissioned Officers at Smithfield Market, at 11 a.m.

11 Tu. Visit to Factory for Commissioned Officers, conducted by C. L. T. Beeching.

11 Tu. **Sessional Meeting, London,** at the Institute, at 5.30 p.m. Discussion on "Economy in Sanitary pApliances and Methods of Drainage," to be opened by Sir Henry Tanner, C.B., I.S.O., F.R.I.B.A.

12 W. Lecture to Commissioned Officers, at 4 p.m. Meat Inspection, by J. R. Hayhurst, M.R.C.V.S.

12 W. Lecture to Sanitary Officers, at 6 p.m. The Hygiene of Cowsheds, Dairies and Slaughterhouses, by J. Spencer Low, C.B.E., B.SC., M.B.

12 W. Lecture to Health Visitors and Child Welfare Workers, at 6 p.m. Care of Infants and Young Children, by Miss Isabel Macdonald.

13 Th. Demonstration to Commissioned Officers, at Metropolitan Cattle Market, at 11 a.m.

14 F. **Good Friday.**

17 M. **Easter Monday.**

18 Tu. Demonstration to Commissioned Officers, at 3.30 p.m. Canteen Supplies: Jams, Preserved Fruits, etc., by C. L. T. Beeching, F.G.I.

19 W. **Visit to Building Trades' Exhibition.**

19 W. Demonstration to Commissioned Officers at Billingsgate Fish Market, at 9 a.m.

19 W. Lecture to Meat Inspectors, at 5 p.m. Food Accessory Substances, Milk, Butter, Cheese, by W. J. Howarth, C.B.E., M.D., D.P.H., M.O.H., City of London.

20 Th. Demonstration to Commissioned Officers, at Metropolitan Cattle Market, 11 a.m.

April.

20 Th. Lecture to Commissioned Officers, at 3.30 p.m. Canteen Supplies ; Canned and Cured Meats and Fish, Sausages, by C. L. T. Beeching, F.G.I.

21 F. Visit to Factory for Commissioned Officers, conducted by C. L. T. Beeching.

21 F. Lecture to Meat Inspectors, at 6 p.m., by J. R. Hayhurst, M.R.C.V.S., D.V.S.M.

21 F. } Examination, London.
22 S. }

22 S. Demonstration—Meat Inspectors, at the Metropolitan Cattle Mark et, 12.30 p.m.

24 M. Demonstration for Commissioned Officers, at Billingsgate Fish Market, at 9 a.m.

24 M. Lecture to Meat Inspectors, at 5 p.m. Bread, Eggs, Tea, Coffee, Cocoa, and other Foods, by W. J. Howarth, C.B.E., M.D.

25 Tu. Demonstration to Commissioned Officers at Smithfield Market, at 11 a.m.

26 W. Demonstration to Commissioned Officers at the Army and Navy Stores, Francis Street, Westminster, at 11 a.m. Fruit and Vegetables. Conducted by Mr. Brown, Manager of the Fruit and Vegetable Department.

26 W. **Ordinary General Meeting, at 4.30 p.m.**

26 W. **Lecture to Institute,** at 5.30 p.m., on The Outlook in Tropical Hygiene, by Andrew Balfour, C.B., C.M.G., M.D.

26 W. Lecture to Meat Inspectors, at 5 p.m. Imported Meat, Cold Storage, Tinned and Potted Foods, Bacon and Hams, by W. J. Howarth, C.M.G., M.D., D.P.H.

28 F. } Meat Examination, London.
29 S. }

LIST OF MEMBERS AND ASSOCIATES

ELECTED JANUARY, 1922.

MEMBERS.

* Sanitary Science Certificate.
w Maternity and Child Welfare Workers' Certificate.
§ Sanitary Surveyors' (India) Certificate.
‡ Inspectors of Nuisances' Certificate.
m Meat Inspectors Certificate.
v Women Health Visitors and School Nurses' Certificate.
s School Hygiene Certificate.

4831 1922. Jan. AITCHISON, Henry Maynard, *36, High Street, East Grinstead, Sussex.*

4832 1922. Jan. BASTO, Antonio H., *"Bay View," Mody Road, Kowloon, Hong Kong.*

4833 1922. Jan. COATES, James, *Burgh Engineer and Sanitary Inspector, Middlecroft, Kirkintilloch, Dumbartonshire.*

4834 1922. Jan. GAMESON, John Montague, A.M.INST.C.E., *Surveyor, Town Hall, Ilkley, Yorks.*

4835 1922. Jan. GERMAN, Joseph Austin, *14, St. John's Terrace, Neath Abbey, South Wales.*

4840 1922. Jan. *HANIF, M., *c/o B. Niaz Mohammad, Overseer, Katra Mearparwar, Delhi, India.*

4836 1922. Jan. NANDA, Charn Das, B.A.(PUNJAB UNIV.), B.E. (BOMB.UNIV.), *c/o L. Bhagwan Das Ji Varma, Manager, Government Military Dairy Farm, Gamhar, Distt. Montgomery, Punjab, India.*

4837 1922. Jan. PAGE, John Thomas, P.A.S.I., A.A.I., *36, Strutt Street, Derby.*

4841 1922. Jan. *vsw* ROWLANDS, Miss Edith, *Brynmeirion, Idris Villas, Gwyn-on-Sea, Merioneth, N. Wales.*

4842 1922. Jan. §SHARIFNUR, Sahibzada, L.M.P., *Health Officer, Kohat, N.W.F.P., India.*

4843 1922. Jan. *SHARP, William Hodgson, A.M.INST.M.&C.E., *86, Mantilla Road, Tooting Bec, S.W. 17.*

4844 1922. Jan. *SHEPHERD, George Valentine, *18, Bryngwyn Road, Newport, Mon.*

4845 1922. Jan. *STITSON, John William, *50, Cricklade Avenue, Streatham Hill, S.W. 2.*

4838 1922. Jan. TAPPIN, Frederick W., *8, Wroughton Road, Wandsworth Common, S.W. 11.*

4839 1922. Jan. TAYLOR, Alfred Samuel Vincent, A.M.INST.C.E., *Engineer and Surveyor, Council Offices, Bedwas, Mon.*

ASSOCIATES.

8705 1922. Jan. ‡BRANT, Herbert, *" Northolme," Milton Road, Grimsby.*

8706 1922. Jan. *v*BULL, Mrs. Frances Hilda, *The Mother's Hospital, Lower Clapton Road, Clapton, E 5.*

8707 1922. Jan. ‡BURR, Cecil John, *82, Rectory Place, Woolwich.*

8708 1922. Jan. ‡CARR, Edwin, *" Roselea," 41, Southview Road, Southwick.*

8709 1922. Jan. *v*CAWLEY, Miss Margaret, *28, King's Road, South Wimbledon.*

8710 1922. Jan. ‡CLARKSON, Ernest Hodgson, *22, Industrial Street, Horbury Junction, near Wakefield.*

8711 1922. Jan. ‡CROWDER, Fred, *16, Hoon Hay Road, Halswell, Canterbury, New Zealand.*

8712 1922. Jan. ‡DAWES, Herbert Donald, *18, St. Margaret's Road, Brockley, S.E. 4.*

8713 1922. Jan. ‡EDMONDS, Ronald Walter Quaife, *3, St. Margaret's Street, Rochester.*

8714 1922. Jan. ‡GRUTCHFIELD, Reginald Walter, *5, Howard Place, Brighton.*

8715 1922. Jan. ‡HARRIS, Albert T., *Federal Health Dept., Spring Street, Melbourne, Australia.*

8716 1922. Jan. ‡HAWKINS, Herbert Sydney, *44, Checker Street, King's Lynn, Norfolk.*

8717 1922. Jan. ‡HAWTHORNE, George Stanley, *106, Caversham Road, Reading.*

8718 1922. Jan. ‡KEMPTON, Arthur Richard, *116, Estcourt Road, Woodside, South Norwood.*

8719 1922. Jan. ‡LAVER, Miss Alice, *42, King Charles Road, Surbiton.*

8720 1922. Jan. *v*LLOYD, Miss Edith Mary, *Willow Cottage, Yeadon, near Leeds.*

8721 1922. Jan. ‡MILLER, William Norman, *" The Nightingales," Southborough, Kent.*

8722 1922. Jan. ‡MILLS, Robert Clyde, *Bank House, 162, Uxbridge Road, W. Ealing. (Sanitary Inspector, Kenya Colony, British East Africa.)*

8723 1922. Jan. ‡MINEARD, Arthur George, *"Kinver," Cowley Road, Uxbridge.*

8724 1922. Jan. ‡RICHARDSON, Charles Herbert, *2, Craig's Avenue, Flore, near Weedon, Northants.*

8725 1922. Jan. ‡SCOTT, Thomas Albert, *The Town Hall, Walton-on-the-Naze.*

8726 1922. Jan. *v*SIMMONS, Mrs. Dorothy, *Rosetti Lodge, Hampton Road, Forest Gate, E. 7.*

8727 1922. Jan. *v*SMITH, Miss Louise, *29, Salisbury Avenue, New Barking.*

8728 1922. Jan. ‡STEELE, Sgt.-Major Ernest, R.A.M.C., *The Royal Army Medical College, Grosvenor Road, S.W.1.*

8729 1922. Jan. ‡STEVENSON, Miss Edith A., *11, Hallewell Road, Edgbaston, Birmingham.*

8730 1922. Jan. ‡TAUNTON, Arthur Lemuel, *17, Albion Grove, Stoke Newington, N. 16.*

8731 1922. Jan. ‡TOMKINS, George Edward, *"The Grange," Dorothy Road, West Hove, Sussex.*

8732 1922. Jan. *v*WILSON, Miss Kathleen Eloise, *56, Cross Street, Werk-en-Rust, Georgetown, British Guiana.*

8704 1922. Jan. WOOLLEY, William Edward, *118, Queen's Road, Walthamstow, E. 17.*

ELECTED FEBRUARY, 1922.

MEMBERS.

4845 1922. Feb. *AMERY, William Frederick, *19, Grove Stree Bath.*

4846 1922. Feb. AYLIFFE, Walter Sydney, P.A.S.I., *90, Woodside Green, South Norwood, S.E. 25.*

4847 1922. Feb. BATEMAN, Captain William Herbert, M.C., A.M.INST.C.E., P.A.S.I., *Borough Surveyor and Sanitary Inspector, Calne, Wilts.*

4876 1922. Feb. *BATZER, Albert Edward, A.R.I.B.A., P.A.S.I., *7, Hobart Place, Grosvenor Gardens, S.W.1.*

4848 1922. Feb. ‡BOSTOCK, Ernest William, M.INST.M. & C.E., *Engineer and Surveyor, Hailsham R.D.C., 17, London Road, Hailsham.*

4849 1922. Feb. BULLOUGH, James Stewart, A.M.INST.C.E., M.INST.M. & C.E., *Deputy Surveyor, Town Hall, Preston, Lancs.*

4850 1922. Feb. BUTT, Abdul Hamid, M.B., B.S.(LAHORE), D.T.M. & H.(ENG.), *Sialkote, Punjab, India.*

4851 1922. Feb. COOK, Herbert, *Holdenhurst, Shirley Road, Croydon.*

4852 1922. Feb. ‡*m*DIXON, Thomas Percival, *Chief Sanitary Inspector, 50, Clive Road, Middlesbrough, Yorks.*

4872 1922, Feb. *w*EDMAN, Miss Gwendolen Louise, *Strathcarn, Newbury Park, Ledbury, Herefordshire.*

4853 1922. Feb. GANGULI, Ram Krishna, *Supervisor, Calcutta Corporation Drainage Dept., Ranaghat, Bengal, India.*

4854 1922. Feb. GUNASEKARA, Septimus Theodosius, L.M.S. (CEYLON), L.R.C.P.(LOND.), M.R.C.S.(ENG.), *Assistant Sanitary Commissioner, Colombo, Ceylon.* (*" Innisfree," Green Lane, Hendon, N.W.*)

4855 1922. Feb. ‡HOLDEN, Edward, *Technical Teacher, Technical School, Gloucester.*

4856 1922. Feb. ‡HOMEWOOD, Harold Robert, P.A.S.I., *District Surveyor, District Surveyor's Office, Pokesdown, Bournemouth.*

4857 1922. Feb. HORNE, Robert John Maule, M.A., B.SC., M.B., CH.B., D.P.H. (*M.O.H.*), *Public Health Department, Poole, Dorset.*

4858 1922. Feb. ‡*m*JAMESON, William, *Sanitary Inspector, " Alverton," Headless Cross, Redditch, Worcs.*

4859 1922. Feb. ‡*m*JONES, Russell Edward, *Meat Inspector, The Public Abattoirs, Wolverhampton.*

4860 1922. Feb. KALLAPPA, Kongattira Ponnappa, B.SC., *30, Royal Park, Clifton, Bristol.*

4861 1922. Feb. ‡*m*KNOWLES, George, *35, Oxford Street, Whitstable.*

4862 1922. Feb. LAKHANI, Teckchand Chartsing, L.C.E.(BOMB.), *Civil Engineer, Narain Mahla, Hirabad, Hyderabad, Sind, India.*

4863 1922. Feb. LIDDELL, Hugh, *Master Plumber, 19, South St. Andrews Street, Edinburgh.*

4864 1922. Feb. MORGAN, WILLIAM THOMAS, P.A.S.I., *Assist. Engineer & Surveyor, Town Hall, Southall, Middlesex.*

4873 1922. Feb. *NOAD, Herbert James, *3, Rossini Cottages, Hedgemead Park, Bath.*

4865 1922. Feb. PARFITT, OLIVER CALEB, *Master Plumber, 108, Howard Road, Westbury Park, Bristol.*

4866 1922. Feb. PARKES, Bernard Henry, *Engineer & Surveyor's Dept., Town Hall, Ilford, Essex.*

4867 1922. Feb. ‡*m*ROBINSON, Alexander Llewellyn, *Sanitary Inspector and Surveyor, R.D.C. Offices, Haywards Heath, Sussex.*

4874 1922. Feb.. §SIMON, John Reuben, *Chief Sanitary Inspector, Hyderabad, Sind Municipality, Sind, India.*

4868 1922. Feb. SMALL, Ernest, A.M.INST.M.& C.E., *406, Burnley Lane, Chadderton, Oldham, Lancs.*

4869 1922. Feb. STEWART, George, A.M.INST.C.E., *Civil Engineering Department, The University, Cape Town, South Africa.*

4870 1922. Feb. WALTON, Leonard Webb, M.S.A., *Architect and Civil Engineer, 34, Holme Road, West Bridgford, Notts.*

4871 1922. Feb. WILTON, Leslie Edwards, A.M.INST.MECH.E., *Sanitary Engineer, 94a, Horseferry Road, Westminster, S.W.1.*

ASSOCIATES.

8734 1922. Feb. ‡BROMLEY, John William, *Salisbury House, Gladstone Road, Chatham.*

8735 1922. Feb. *s*CARTER, Miss Margery Janet, *c/o Girls Grammar School, Ashby-de-la-Zouch, Leicestershire.*

8736 1922. Feb. *v*DRUMMOND, Miss Wilhelmina, *West End Hospital, Gloucester Gate, Regent's Park, N.W.1.*

8733 1922. Feb. FORD, Frederick John, *Bacteriologist, c/o Institut Bactériothérapique, Carouge-Genève, Switzerland.*

8737 1922. Feb. ‡JACK, Qr.-Mr. Sgt. James, R.A.M.C., *Headquarters, Eastern Command, 41, Queen's Gardens, Bayswater, W.2.*

8738 1922. Feb. ‡JOHNSON, Albert Wilford, *"The Croft," Melbourne Road, Ibstock, Leicester.*

8750 1922. Feb. ‡LEWIS, Llewellyn Olorenshaw, *"Holly Lawn," Beechen Cliff, Bath.*

8739 1922. Feb. ‡MARSHALL, Miss Louie Rebecca, *46, Clare Road, Hounslow.*

8740 1922. Feb. ‡MOONSAWMY, Harry Augustine, *Sanitary Inspector, Government Public Health Department, Georgetown, British Guiana.*

8741 1922. Feb. ‡MORRISON, Samuel David, *Sanitary Inspector, Government Public Health Department, Georgetown, British Guiana.*

8742 1922. Feb. ‡OVENS, George Leo, *152, Berners Street, Mere Road, Leicester.*

8743 1922. Feb. ‡POXON, Miss Mary, *c/o Kensington District Nursing Association, 1, Bedford Gardens, Kensington, W.8.*

8744 1922. Feb. ‡SPOONER, Miss Lillian, *54a, Sidney Road, St. Margaret's, Twickenham.*

8745 1922. Feb. ‡STEELE, Herbert, *563, Huddersfield Road, Ravensthorpe, Dewsbury.*

8746 1922. Feb. ‡STRATHMORE, John Henry William Dalziel, *327, St. James Road, Camberwell, S.E.1.*

8751 1922. Feb. *v*‡WESTON, Miss Emma, *24, Causeway Green Road, Langley, Birmingham*

8747 1922. Feb. *v*WILLIAMS, Miss Emily Edith, *New Farm, West Meon, near Petersfield, Hampshire.*

8748 1922. Feb. ‡YATES, John, *Mill House, Thornes, Wakefield, Yorks.*

OBITUARY.

Sir German Sims Woodhead, K.B.E., M.D., F.R.C.P., F.R.S.Edin. (Fellow.)

Death has recently come with a very heavy hand on a group of scientific men who have devoted their energies to that part of public health dealing with the pathology and bacteriology of disease.

But a few weeks ago we were lamenting the death of that pioneer in Public Health, Prof. Sheridan Delépine. Now we have to mourn the loss of another pioneer, Sir German Sims Woodhead, K.B.E., Professor of Pathology in the University of Cambridge.

Woodhead graduated in 1878, and obtained a gold medal for his M.D. thesis in 1881. At the age of 27 he was suddenly called upon to give the formidable course of lectures on Systematic Pathology at the University of Edinburgh. Later he was appointed Director of the Laboratory of the Royal College of Physicians at Edinburgh, and afterwards of the Royal College of Physicians and Surgeons in London. In 1899 he was appointed to the chair of Pathology at Cambridge.

To those of us who have been engaged in Public Health work Woodhead's name has been a household word for nearly 40 years. There were few branches of his own subject which touched on the etiology of disease which he did not illumine. It can with confidence be said that all his work has stood the test of time. The reason for this is not far to seek, for he was patient and thorough and most painstaking and unsparing of himself in all that he undertook.

In the year 1901 I sat next to Woodhead at the memorable Tuberculosis Congress, when Robert Koch startled the meeting by his now famous pronouncement as to the differences between tubercle of human and bovine origin. Without a moment's hesitation Woodhead turned and said "We must get this enquired into." It was largely due to his initiative that the Royal Commission on Tuberculosis was appointed and that the enquiry was so thorough and painstaking.

Woodhead's name must be for ever associated with many other advances in Public Health work. The introduction of chlorination of water supplies was due to Woodhead, a system which has spread until it is now world-wide in its application. Again, Woodhead's work on the examination of the throats of patients suffering from diphtheria set up standards which are universally adopted. Recently, it will be remembered, he devoted considerable time to developing a scheme for the after-care of consumptives. Immediately on the outbreak of the war Woodhead put his knowledge and

experience at the service of the country, and during the whole of the war period undertook most arduous duties.

But to those of us who knew him intimately as a student and afterwards as a teacher and investigator, his death comes as a great loss. He was one of the most modest men who ever occupied a University Chair. He was deeply religious and an affectionate, kind and dear friend. At the same time he was a man of courage and resource. In his younger days he was a good athlete and a fair musician. The Medical School at Cambridge and science generally has lost a worker who was always ready to give of his best to any just cause.

Sir German Sims Woodhead was elected a Member of the Institute in 1898, and a Fellow in 1903. He presided over Section III., Chemistry, Meteorology and Geology, at the Birmingham Congress in 1898, and over Section A., Sanitary Science and Preventive Medicine, at the Newcastle Congress in 1919. He contributed the following papers, published in the Journal of the Institute: "Preventive Inoculation," Vol. 36, page 1; "Sterilisation of Water by Chlorine and Ozone," Vol. 31, page 281; "The Water Supply Problem in Rural Districts," Vol. 26, page 421.

J. R.

COLONEL C. E. CASSAL, F.I.C., F.C.S. (Fellow).

Colonel C. E. Cassal, who died recently, was well known as the Public Analyst for Kensington, Westminster, and other Municipal Corporations. Colonel Cassal was elected a Member of the Sanitary Institute of Great Britain and Ireland in 1885, and a Fellow in 1888. He was a member of the Council in 1887-8, and was the last surviving Member of those who signed, in August, 1888, the Memorandum of Association of the Institute. He read papers on "Extension of Public Analysis" at the Worcester Congress of the Institute in 1889, and on "Hygienic Analysis" at the Leicester Congress in 1885.

Colonel Cassal was for many years connected with the Engineers' Corps of the Volunteers, in which he attained the rank he held at the time of his death.

He was a man of much ability in his profession, and his opinion always carried weight, as he expressed himself in very clear and concise terms, and could always give sound reasons for any views he had adopted. He was, therefore, an excellent witness in a Court of Law, and his expert evidence in style and manner of delivery, if somewhat authoritative, always commanded the respect and attention of the tribunal he was enlightening.

In the social world Colonel Cassal was always highly popular. He was accessible, friendly, and amusing, and as an after-dinner speaker he had few equals.

L.C.P.

It is with regret that we have to announce the death of the following Fellow, Members and Associates :—

Fellow.—Edward Sergeant, L.R.C.P., M.R.C.S., who was the first Medical Officer of Health to the Lancashire County Council, and prior to that was the Medical Officer of Health and Public Analyst for Bolton, holding the joint office from 1874–1890. He acted as Hon. Local Secretary for the Congress of the Institute held at Bolton in 1888, and since that date he has been closely associated with the Institution's examination and other work.

He was present at the Folkestone Congress last year, and though much enfeebled, he took great interest in the meeting, and met many old friends there. He died at his residence at Wrea Green, near Preston, and the Institute was represented at the funeral on February 9th by the present Medical Officer to the Lancashire County Council.

Members.—John Lechy Bruce, who was the Lecturer on Sanitary Engineering at the Technical College at Sydney. He was a member of the Institute's Board of Examiners for New South Wales since the formation of the Board in 1900, and took the keenest interest in the work.

Charles Arthur Richards Farrell, B.Sc., who was the City Engineer at Port of Spain, Trinidad, and a member of the recently formed Board of Examiners for the British West Indies.

Guy B. Grave, of St. John's Wood, for nearly 20 years a member.

James Alwyn Heap, who was the Borough Surveyor and Waterworks Engineer at Todmorden.

Associates.—H. C. Bascombe, who was the chief Sanitary Inspector at Wallasey, and who had been a Life Associate of the Institute since 1886.—James Anderson Baxter, of Dundee.—Richard Lawrence Corbett, of Oakengates, Salop, who had been an Associate for 33 years.—William Douglas, of Glanton, Northumberland.—James J. Humphreys, who was the Surveyor and Inspector at Machynlleth, and who died suddenly on January 22nd.—James Johnston, who was Sanitary Inspector of Blenheim, New Zealand, and who was killed in a motor accident in November last.—Walter Edward Odlum, of Bournemouth, who had been an Associate of the Institute for 25 years.—William Arthur Powell, of Denmark Hill.—Sydney Herbert Taylor, of Sporle.—Robert Lloyd Woollcombe, LL.D., Barrister-at-Law, of Dublin.

Mr. J. R. Leggatt, for over 30 years Superintendent of the Public Health Department, Islington. Mr. Leggatt's valued assistance was always highly appreciated by the students during his long connection with training work of the Institute.

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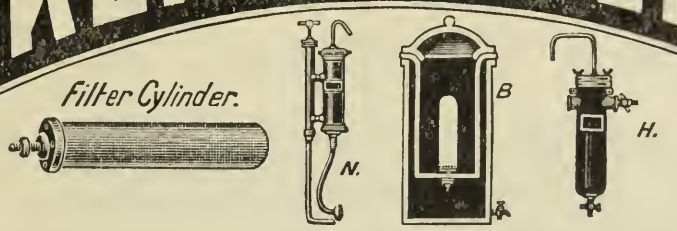

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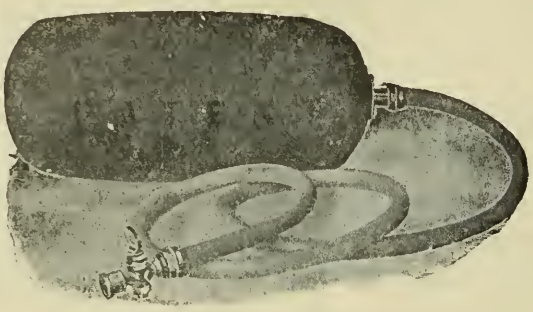

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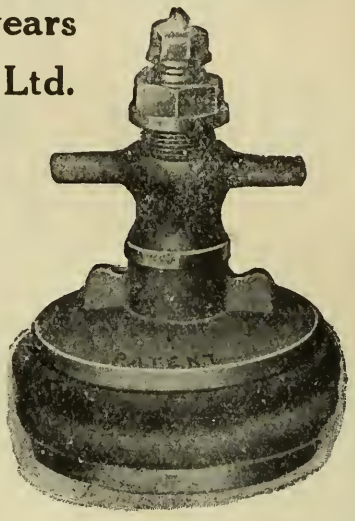

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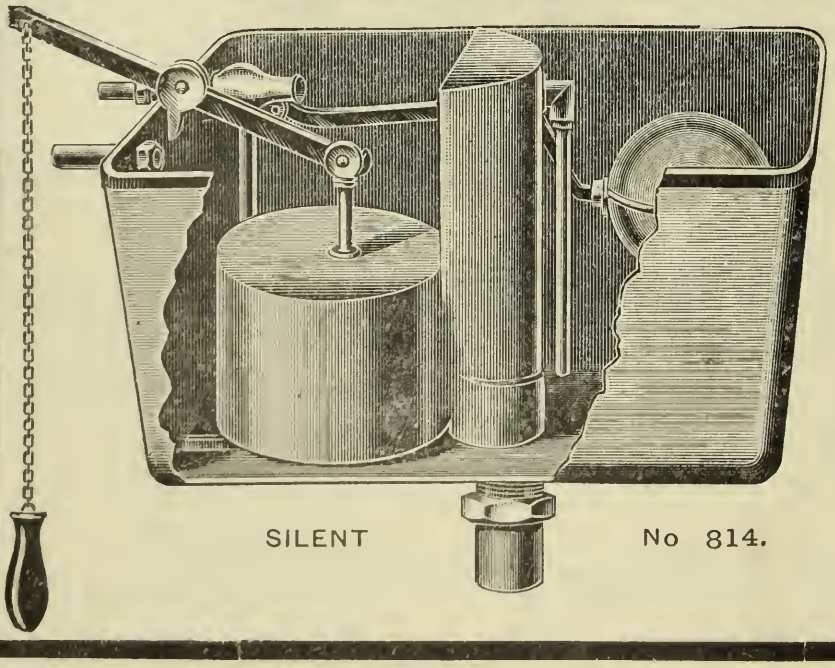

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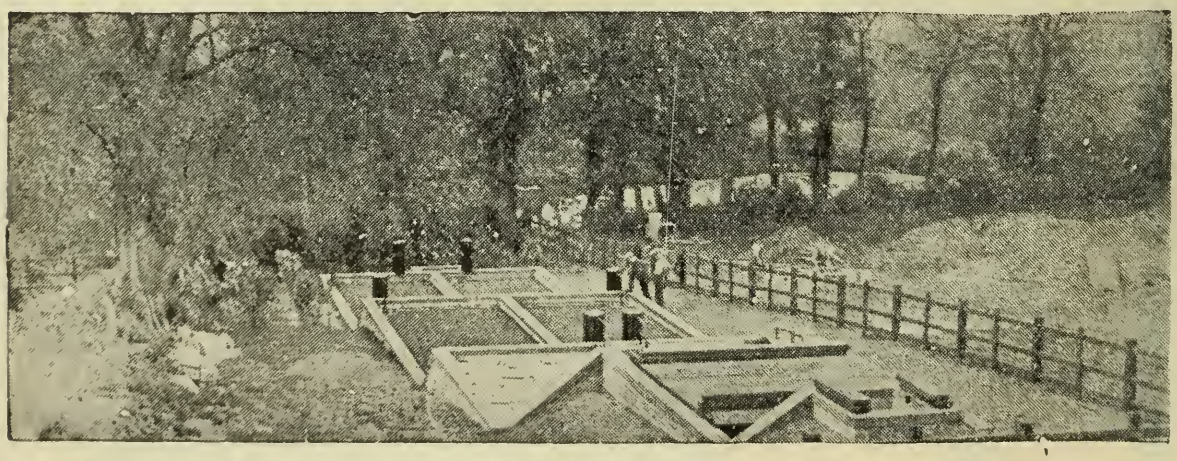

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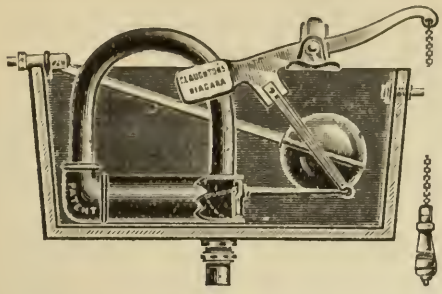

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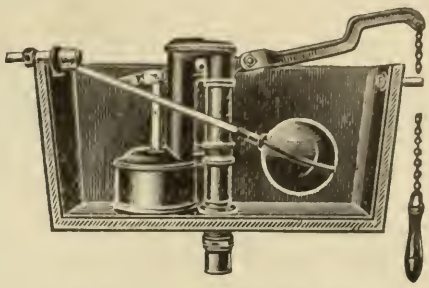

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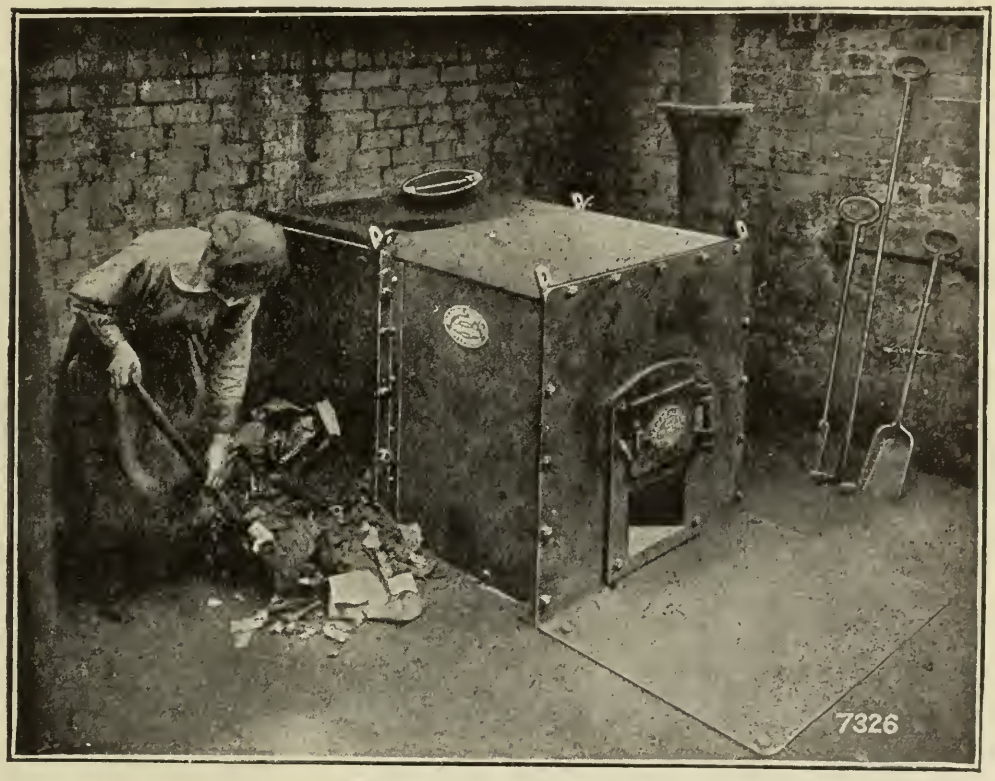

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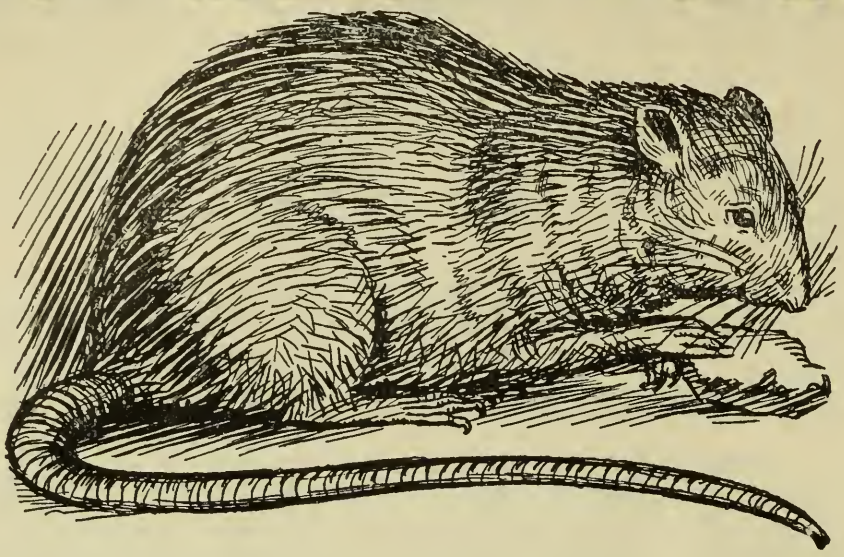

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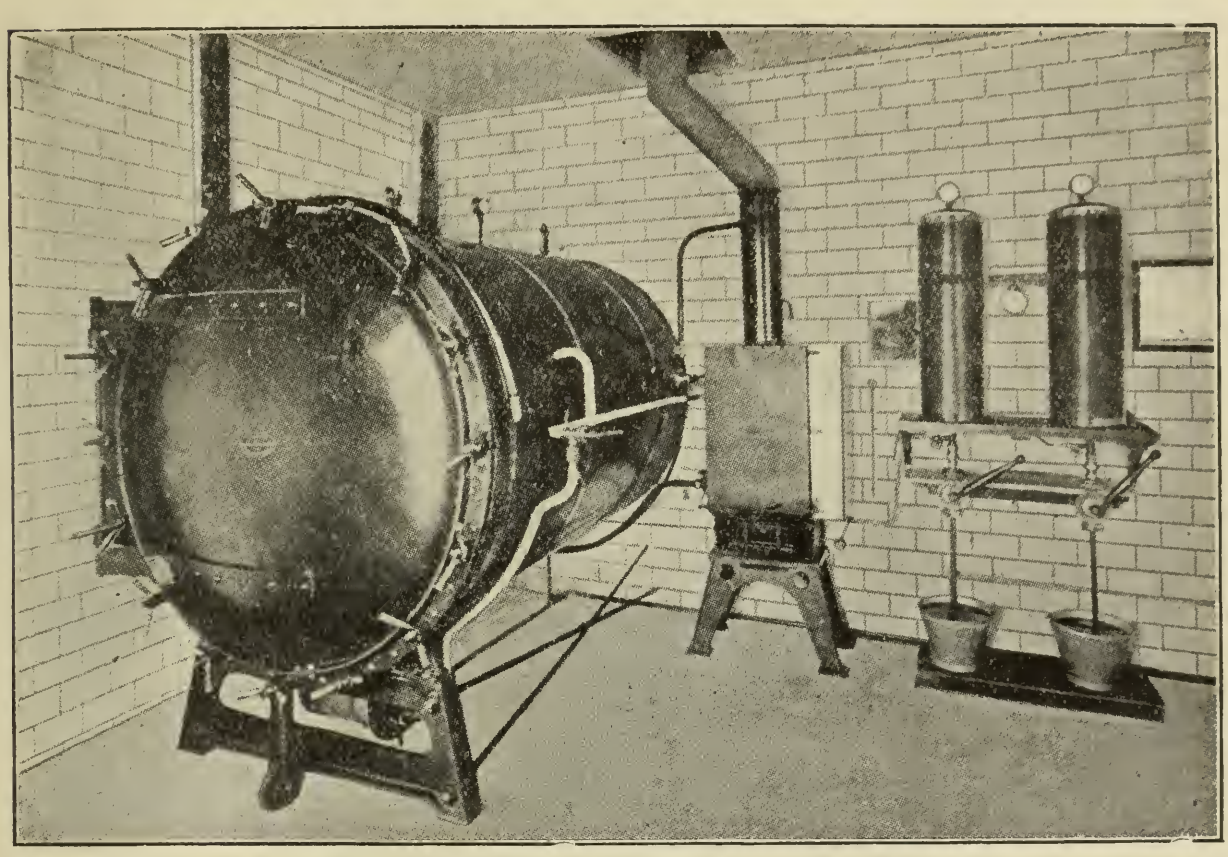

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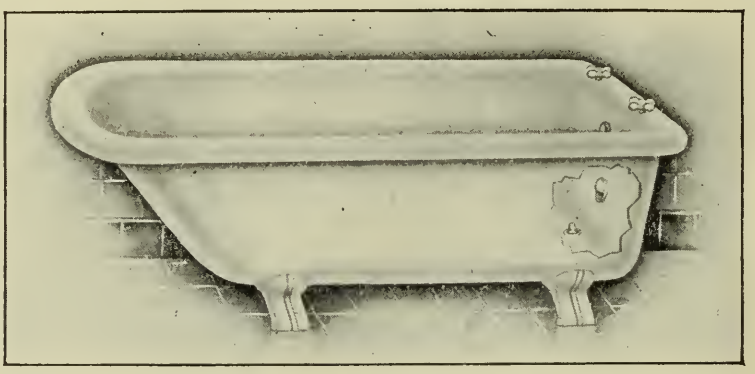

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